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**Fictional and non-fictional investigations of science, technology and power in nineteenth and twentieth century America.**

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FICTIONAL AND NON-FICTIONAL INVESTIGATIONS OF SCIENCE, TECHNOLOGY  
AND POWER IN NINETEENTH AND TWENTIETH CENTURY AMERICA.

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ABSTRACT.

Chapter 1 discusses resources on science, technology and culture in America since 1920, in Mumford, McLuhan, Fuller, Korzybski, and Whorf. Chapter 2 deals mainly with French writers since 1945, Foucault, Derrida, Bataille, Serres, and Deleuze and Guattari, and also Reich, Gramsci and Prigogine. Issues raised include determinism, totalisation, multiplicity, law and the erotics of power.

Chapters 3-10 explore the inheritance of the Newtonian paradigm in nineteenth century America. Industrialisation, and its attendant myths of progress, emancipation and deterministic science, perpetuated by Jefferson and Elihu Palmer, are investigated in various ways by Brockden Brown (chapter 3), Poe (4), Hawthorne (5), Melville (6), and Emerson (7). The building of totalising, a priori systems by Poe, Emerson and Louis Agassiz (8) is questioned after the Civil War, under the new influence of Darwinism, by Oliver Wendell Holmes and Chauncey Wright (9), and by Charles Peirce and Henry Adams (10).

Chapters 11-15 examine the rise of "technocracy" in twentieth century America. Chapter 11 discusses the monopolisation of capitalism, in Brooks Adams, Ignatius Donnelly, Edward Bellamy, Chauncey Thomas and Mark Twain. The renewed application of mechanistic models to society, in the "scientific management" theories of Frederick Taylor and Henry Ford (12), and in Veblen, James Burnham and B.F. Skinner (13), is also examined. Chapter 14 discusses the linguistic bases of the modern state in theories of

pragmatic communication. Chapter 15 argues that the development of the digital computer reinforces Taylorist criteria of performativity and clarity, and examines science fiction myths of electronic society as a magical and mystical system.

Chapters 16-20 finds strategies of resistance to technocratic control in some recent American fiction: Samuel Delany, William Gaddis, Ronald Sukenick and William Burroughs. The variety of forms explored by these novelists challenges technocratic insurances on mechanistic determinism, rational clarity and totalisation.



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## INTRODUCTION.

This thesis will examine the hegemony of myths of science, progress, reason and truth as alibis of ruling power interests in America since the early Republic. The consent won by such myths must be placed within the cultural complexity described by Roland Barthes in *The Fashion System* (1967), as the basis of his discussion of the semiotics of fashion:

the Fashion sign, like all signs produced within what is called mass culture, is situated, one might say, at the point where a singular (or oligarchical) conception and a collective image meet, it is simultaneously imposed and demanded.<sup>1</sup>

The intention is to place different texts, fictional and non-fictional, within an interactive field. The theoretical bases of this approach are discussed in detail in chapters 1 and 2, as a movement of cultural studies across disciplinary boundaries. Statements from three recent French writers may suffice as an introduction to these procedures.

In *The Archaeology of Knowledge* (1969), Michel Foucault proposes a "general history" that seeks multiplicity rather than singular hierarchy:

A total description draws all phenomena around a single centre - a principle, a meaning, a spirit, a world-view, an overall shape; a general history, on the contrary, would deploy the space of a dispersion.<sup>2</sup>

The wide-ranging extent of this thesis is an attempt to create such a dispersion, thereby seeking to follow the cultural studies model suggested also by Félix Guattari, as an approach that would

cross the traditional boundaries and try to work out the links connecting the different orders of determination - economic, demographic, sociological, the unconscious, etc. One would then no longer have to choose one plane of



significance over another - either the human factor or the economic, for instance - but could follow in detail the winding trail of the signifier, its crossroads, dead ends, ramifications, repetitions, backward turns.<sup>3</sup>

For Jean-François Lyotard, in *Driftworks* (1984), the vital concept of "drift" embodies this wandering multiplicity that refuses totalisation into a singular unity. As he puts it, the "plural, the collection of singularities, are precisely what power, kapital, the law of value, personal identity, the ID card, responsibility, the family and the hospital are bent on repressing."<sup>4</sup>

The intention of this thesis is therefore to place a multiplicity of texts within specific social, historical and political contexts. Accordingly, although the basic form of the thesis may be broadly chronological, strict linearity will not necessarily be adhered to. Neither will the thesis be an exclusively biographical or literary study of particular writers, although these elements will not be excluded either.

Neither can the thesis be an encyclopaedic study of science and technology. Instead, selections of fictional and non-fictional texts will be made, based on which writers, and which specific texts by those writers, may connote a wider field. Works and writers will be selected because they take part in complex and varied investigations of the field of science, technology and power in America since the nineteenth century.

It must be acknowledged that this method risks simplification through an over-limitation of the field. This may occur in at least four areas. Firstly, writers whose work is relevant may be ignored. Secondly, significant works by those writers included in the thesis might be overlooked. Thirdly, historical events with an important

bearing on the thesis may be excluded or simplified. Fourthly, the delimitation of the field to America since the nineteenth century may itself be an arbitrary and restrictive action, placing certain areas of study beyond the scope of the thesis. For example, the importance of non-Western scientific "traditions" and practices,<sup>5</sup> and the equally suppressed role of women in scientific work,<sup>6</sup> are areas of study which are not entered into in great detail. While a serious attempt will be made to prevent over-simplification through such an over-narrowing of the field, it is hoped that the problems raised by those areas potentially excluded by the selection process will be mitigated by the multiplicity and representative value of those texts actually included in the work.

The thesis begins with two chapters (1-2) exploring central figures in cultural studies approaches to issues of science and technology, in America since 1920, and in France since the Second World War. The writers discussed in these opening chapters provide theoretical bases and a vocabulary field for examining those issues discussed in the rest of the thesis. These issues include problems of determinism, totalisation, multiplicity, chance and law, and the erotics of power.

The thesis proceeds in chapter 3 to discuss the application of Newtonian science's assumptions of generalised law and order to American society in the early Republic. Such notions are placed within debates on the development of industrial manufacturing in America, in Thomas Jefferson, Alexander Hamilton and Tenche Coxe. The next three chapters (4-6) examine issues of power in relation to the figure of the scientist or engineer, focussing on the

mythification of industrial manufacture and of scientific experimentation as Christian hubris, in the fictions of Poe, Hawthorne and Melville.

The nostalgia for deterministic, totalising systems in Poe's "Eureka," and in Emerson's 1836 "Nature" (chapter 7), is also seen in Louis Agassiz (chapter 8). The breakdown of such transcendentalist ambitions will be examined in chapters 8-10. With the reform of the university system by utilitarian, industrial interests, Chauncey Wright, Oliver Wendell Holmes, and Charles Peirce could introduce positivist and pragmatic revisions of scientific methodology. This challenge to strict determinism was taken further by Henry Adams, at the end of the nineteenth century, as he faced the prospect of a catastrophic breakdown of deterministic order, and the emergence of a universe whose constitutive elements are chaos, multiplicity and chance.

Nevertheless, the desire for determinism, totalisation and mechanistic order has been maintained by power interests, which have consolidated under monopoly capitalism into the bureaucratic "technocracy" of the twentieth century state. The thesis will discuss major figures in these power areas, such as Frederick Taylor and Henry Ford, James Burnham and B.F. Skinner (chapters 11-13). Chapter 14 will explore the linguistic basis of technocratic rule, in its reduction of language and speech to pragmatic theories of communicative competence. The Romantic figure of the artist as a destabilising adventurer, in the work of Norman Mailer, for example, will be discussed as a strategy of resistance to the totalitarian scope of technocratic science and technology.



Chapter 15 will examine certain tendencies in American science fiction literature and film, which confirm the rule of technocratic power interests by perpetuating myths of electronic technology as a quasi-divine, incontrovertible source of energy and power. The development of the electronic computer in World War Two consolidates this mythical basis of hegemonic rule.

The rest of the thesis will explore selected texts by four contemporary American fiction writers who, in various ways, provide resistances to the regimes of rationality, determinism and singularity promoted by ruling power interests. Samuel Delany (chapters 16-17), William Gaddis (18), Ronald Sukenick (19) and William Burroughs (20) invent fictions that involve drift, multiplicity, provisionality and fragmentation, so that the formal invention of the writing itself disrupts that reduction of language to codification and pragmatic clarity favoured by the technocratic establishment.

## CHAPTER 1.

### Resources on science, technology and culture: America since 1920.

This chapter will draw upon investigations into the development of science and technology in modern industrial society, and in particular on writers on cultural studies in America since the 1920s, concentrating especially on the work of Lewis Mumford, Marshall McLuhan, Buckminster Fuller, Alfred Korzybski and Benjamin Whorf.

Lewis Mumford's research moves beyond commonplace utilitarian assumptions to explore the social and psychic effects of science and technology. Accordingly, his editorship and selection of Emerson's essays and journals in 1968 acknowledges a vital antecedent for such work.<sup>1</sup> Mumford's own investigations can be seen to move from the New Deal reformist utopianism of his script for Willard Van Dyke and Ralph Steiner's film *The City* (1939), to his radical criticism of the workings of the American techno-bureaucratic war-machine in *The Pentagon of Power* (1970). His work especially faces the damage and fears attendant upon a highly mechanised industrial society.<sup>2</sup>

In *The Transformations of Man* (1957), Mumford discusses the myth of America as the New World, a place of renewal for the productive energies of Europe, and of escape from the threat of poverty, scarcity and overcrowding in the Old World. America appears in this mythical view as a second chance at Eden, and promises to renovate the "vision of effortless plenty that Old World man had wistfully relegated to the long-past golden age."<sup>3</sup>

Mumford's thesis locates the destruction of such hopes in an over-commitment by ruling interests to quantitative growth in industrial and agricultural production. In an industrial America, official evaluations tend to suppress questions of quality of life beneath a manic dedication to myths of a progressive future through material security.

The role of the scientist in such developments is crucial. Refusing official alibis of "pure" research, Mumford reveals scientists' findings to be immediately social. Scientists have replaced religious leaders as possessors of a secret knowledge, which gives them power to dominate and transform the lives of those human beings outside the elite group of leaders. Mumford places science and technology in a context of bourgeois power relations, as follows:

The studious detachment of science, the singlemindedness of its search for verifiable evidence and viable truths, the priestly remoteness of its more dedicated members from any kind of sordid calculation or even sensible human concern - in short, its other-worldly quality - allied modern science to the high traditions of religion and philosophy, from whence it fact it had sprung. But this inner inviolacy of the scientist, with its tacit claim to social irresponsibility, rested on an illusion. From the start, science served warfare, engineering, industry, medicine, and in pursuing its own private interests inevitably widened their public province. Thus the ideal goals of science, which were wholly innocuous except in their treatment of the pursuit of truth itself as an absolute, acted as an ideological cover for the grosser realities of a mechanised and depersonalised scheme of life.<sup>4</sup>

This extract reveals the strong Romantic element in Mumford's attitude to technology, as he places "engineering" and "industry" in the same context as "warfare," before implying that all these activities are symptomatic of a "depersonalised scheme of life." A utopian area of total freedom, beyond technological mediation, is



evident in Mumford's work as a contemplative ideal, against which mechanisation and industrial technology tend to appear as negative and destructive agents. As a form of resistance to the totalitarian impulse of science and technology in industrial society, Mumford's writing emphasises qualities and values such as spontaneity, heterogeneity, feeling and fantasy, areas ignored or suppressed by the utilitarian cultural network of modern science and industrial technology.

*Technics and Civilization* (1934) concentrates on the rise of modern Western science as a totalising and universalising impulse. The history of science and technology in America, in the colonial and post-revolutionary periods, is an extension of the mechanistic philosophy established in Western Europe by the end of the seventeenth century.

Mumford relates the new science to the rise of capitalism in Western Europe. He shows how capitalist inventions such as double-entry book-keeping, bills of exchange, letters of credit, and speculation in futures were customary procedures by the middle of the sixteenth century, as capitalists introduced new habits of abstraction and calculation into the lives of urban people. These abstractions, such as time, money, power, production and trade, were mutually reinforcing:

Men became powerful to the extent that they neglected the real world of wheat and wool, food and clothes, and centred their attention on the purely quantitative representation of it in tokens and symbols: to think in terms of mere weight and number, to make quantity not alone an indication of value but the criterion of value - that was the contribution of capitalism to the mechanical world-picture. So the abstractions of capitalism preceded the abstractions of modern science and re-enforced at every point its typical lessons and its typical methods of procedure.<sup>5</sup>

Crucially, it is not the procedures of abstraction, measurement, and quantification in themselves, but their application in a totalising and exclusive manner, that is the focus of Mumford's analysis in this passage.

In seventeenth century European science, time and space became abstract, quantifiable and determined. Mumford interprets this deterministic aspect of science as providing an illusion of total control, and therefore of security and power. The mechanical clock invented in medieval Europe became a central model of the new system, helping to promote that regime of exact time-keeping which remains the basis of capitalist productivity:

In its relationship to determinable quantities of energy, to standardization, to automatic action, and finally to its own special product, accurate timing, the clock has been the foremost machine in modern technics: and at each period it has remained in the lead: it marks a perfection toward which other machines aspire.<sup>6</sup>

The mechanical clock brought a new sense of time as a sequence of mathematically separate and measureable instants, taking place in an external nature governed by fixed, objective rules. This new scientific abstraction suppressed the heterogeneous times of the human body and of the daily and seasonal rhythms of the natural world, ignoring fluctuations, unpredictabilities and irreversibilities in favour of a model based on the secure order of rule and law:

Within the walls of the monastery was sanctuary: under the rule of the order surprise and doubt and caprice and irregularity were put at bay. Opposed to the erratic fluctuations and pulsations of the worldly life was the iron discipline of the rule.<sup>7</sup>

Human conceptions of space were similarly transformed by the new emphasis on scientific abstraction, with the development of linear perspective as a measured, quantitative space. This rationalisation of time and space encouraged a belief in perfect predictability, according to which knowledge of the initial conditions of an object's motion through space and time would enable its future appearances to be calculated with total exactness. On a political level, this Newtonian determinism enabled the territorial expansion of Renaissance Europe. Mumford describes the link between deterministic science and imperial and colonial history as follows:

The unknown is therefore no less determinate than the known: given the roundness of the globe, the position of the Indies could be assumed and the time-distance calculated. The very existence of such an order was an incentive to explore it and to fill up the parts that were unknown... The itch to use space and time had broken out: and once they were coordinated with movement, they could be contracted or expanded: the conquest of space and time had begun.<sup>8</sup>

Lewis Mumford's location of abstract, deterministic thought within the technological developments of late medieval and Renaissance Europe, and, more generally, his exploration of technologies as "transformations of man," may be compared with the work of Marshall McLuhan.

For McLuhan, every technological invention extends part of the human body, and produces a radical shift in perceptual sense-ratios. Writing in *Understanding Media: The Extensions of Man* (1964), he suggests that the "outering or extension of our bodies and senses in a new invention compels the whole of our bodies and senses to shift into new positions in order to maintain equilibrium."<sup>9</sup> Technology is therefore not considered as simple utility in relation to fixed human needs. Rather, the relationship between human bodies and



technologies is understood to change with time, and according to variable social and historical circumstances.

In *The Gutenberg Galaxy* (1962), McLuhan attributes the development of modern science to the social effects of the invention of moveable type. Print technology, beyond its simple use-value, brought with it perceptual changes that promoted a new emphasis on the visualization of knowledge, and consequently on those values of uniformity, standardization and repeatability on which both Newtonian science and industrial technology have depended. Print technology "exists by virtue of the static separation of functions and fosters a mentality that gradually resists any but a separative and compartmentalizing or specialist outlook." In this way, knowledge comes to be seen as verifiable in precise, measureable terms, and experience is fitted into lineal, sequential habits, and homogenized onto a single, uniform visual plane.<sup>10</sup>

The theory of representation implied by the invention of fixed perspective in Renaissance Europe is therefore what McLuhan refers to as a visual-based "matching":

In fact, the stress on the abstract visual evoked as standards of truth the mere matching of object with object. So unconscious were people of this matching theory as being dominant, that when a Pope or a Blake pointed out that truth is a ratio between the mind and things, a ratio made by the shaping imagination, there was nobody to note or comprehend. Mechanical matching, not imaginative making, will rule in the arts and sciences, in politics and education, until our own time.<sup>11</sup>

McLuhan opposes to mechanistic linearity the possibilities of field techniques suggested by modern electron physics. In the electronic era of the twentieth century, new methods for art and science, beyond specialisation and mechanistic separation, become available:

It is the method of the fixed or specialist point of view that insists on repetition as the criterion of truth and practicality. Today our science and method strive not towards a point of view but to discover how not to have a point of view, the method not of closure and perspective but of the open "field" and the suspended judgement. Such is now the only viable method under electric conditions of simultaneous information movement and total human interdependence.<sup>12</sup>

McLuhan argues for the replacement of the singular restrictions of "light on," the classical rationality of a print and industrial culture, by a new awareness of "light through," that allows the "full ratio or interplay of all the senses in concert."<sup>13</sup> The body thus moves beyond its visual bias, towards a new conception of health.

In this way, McLuhan's work investigates strategies of resistance to the potential tyrannies of technological change. His work does not consider the social effects of technologies such as print and electricity as unavoidably determined. Rather, they can and should be challenged:

Is it not possible to emancipate ourselves from the subliminal operations of our own technologies? Is not the essence of education civil defence against media fall-out?... Knowledge does not extend but restrict the areas of determinism. And the influence of unexamined assumptions derived from technology leads quite unnecessarily to maximal determinism in human life. Emancipation from that trap is the goal of all education.<sup>14</sup>

McLuhan's writings are themselves exploratory "probes" into a multiple field, rather than deterministic statements relying on Renaissance perspectival ideas of singular truth and consistency:

I am an investigator. I make probes. I have no point of view. I do not stay in one position.

Anybody in our culture is regarded as invited as long as he stays in one fixed position. Once he starts moving around and crossing boundaries, he's delinquent, he's fair game.

The explorer is totally inconsistent. He never knows at what moment he will make some startling discovery. And



consistency is a meaningless term to apply to an explorer.  
If we wanted to be consistent, he would stay at home.

... I DON'T EXPLAIN -  
I EXPLORE!\*

In the essay "Guaranteed Income in the Electric Age" (1965),  
McLuhan's explorations of the social effects of electronic  
automation lead him towards a theory of liberatory technology.  
Freedom may be possible in a post-industrial society in which  
politics need no longer be based on competition for scarce  
resources. For electronic technology has made possible the co-  
ordination of resources for the benefit of communities as a whole:

The orchestration and involvement of corporate resources  
that become natural with automation, create for the  
community the kind of "leisure" that has always been known  
to the individual artist and creative person: the leisure of  
fulfillment resulting from the fullest use of one's powers.  
It is this "leisure" that dissolves the existing job  
structure with its fragmentary and repetitive noninvolvement  
of the integral power of man. The guaranteed income that  
results from automation could therefore be understood to  
include that quite unquantifiable factor of joy and  
satisfaction that results from a free and full disclosure of  
one's powers in any task organized to permit such  
activity.'\*

Automation thus becomes a key to a liberatory technology that will  
restore those qualitative, "subjective" values, including joy and  
pleasure, that distinguish human beings from the machines they  
create.

The inclusion of McLuhan's essay on guaranteed income in Richard  
Kostelanetz' collection *Beyond Left and Right*:

*Radical Thought for Our Times* (1968), is significant, as it  
demonstrates the vital part played by McLuhan in questioning the  
abuses of technological power in a time of war and social conflict  
in the United States. Also included in that collection are essays by  
R. Buckminster Fuller, whose work since the 1920s has similarly

sought ways of inventing new forms of science and technology for the benefit of humankind as a totality.

In "Total Thinking," an essay written at Black Mountain College in 1949, Fuller sees the human being as an "evolution modifier," capable of breaking historical continuities towards a progressive future.<sup>17</sup> However, the emergence of those new procedures necessary for a liberation of the Earth's resources has been largely prevented by the determinism of classical science, which has provided inaccurate and misleading models of the real. Fuller argues that such binary and linear thought techniques must therefore be superseded:

Residual ignorance has employed the as-yet-primitive tools of mathematics in linear diametrics - in the "either yes or no" of two-dimensional oversimplification. Ignorance thinking in black-board and paper planes labors protestingly over the geometry of reality.<sup>18</sup>

Recalling Henry Adams, whose work will be discussed in chapter 10, Fuller calls for a genuinely contemporary education, as a key factor in realizing the opportunities provided by technological inventiveness:

Education, in the sense of man's being *educente* (led out from) the monological fixations of ignorance, involves also being led into, *intro-ducete*, (introduced to) the new awareness of the dynamic fluidity of the infinite persistence of complex-yet-systematic interaction of universal principles.<sup>19</sup>

The new, healthy model for science is therefore relativistic, interactive, dynamic and non-hierarchical. As in McLuhan, three-dimensional perspective, based on the power structures of Renaissance society, is replaced by a new awareness of plural, relative centres, revealed by the discoveries of modern physics:

Realization of relativity spontaneously evokes a springing, to dive from a then vanishing springboard into an infinite

dynamic sea where man must learn to swim tirelessly, naturally, before he sinks, but only because what he used to think was that he ought to "sink" rather than be attracted by dominant neighbours.

As man learns to eliminate his preposterous one, or two, or three dimensional *a priori* references to a fixed level planar breadth and its inherent upwardness and downwardness of universe and substitutes therefor the now reliable sensation of an inwardness and outwardness relative to plural of centres, he will come naturally to his new sustaining awareness of the impossibility of his doing ought but sustain his equilibrious and navigable position. If there is no inherent "down" in universe, man cannot sink.<sup>20</sup>

Being able to survive and prosper in a pluralistic, dynamic universe will depend on a new science and technology. Fuller's "synergy," that is, "wholistic behavior unpredicted by parts,"<sup>21</sup> provides opportunities for the planning of human societies based on a reformed conception of technocratic efficiency. The "comprehensive designer"<sup>22</sup> will thereby challenge those restrictions placed on scientific activity by centuries of specialization.

Fuller's last work, *The Critical Path* (1981), continued his attack on archaic modes of thought and action, by probing into science and technology as bases of imperialist power and competition. The rise of capitalism, specifically in the British Empire, is viewed as consolidating the monopolistic domination of resources by one group of human beings over another:

In 1600 Queen Elizabeth I and a few intimates founded the East India Company. Exercising her crown privileges, the queen granted the company limited liability for losses on the part of the enterprise backers. They could lose their money if the ship were lost, but they could not be held liable for the lives of the sailors who were drowned. While the owners could insure and very greatly limit the magnitude of their losses, the sailors and their families could not. "Ltd." - limited, in England - and "Inc." - incorporated, in the U.S.A. - and other similar legal definitions in all capitalist countries constitute "for ages uncontested" - ergo, custom-validated and legal-judgements-upheld - royal



decreed greatly favoring big-money capitalism over the mortal, breadwinner-loss-taking vast majority of the poor.<sup>22</sup>

Privately-owned enterprises, backed by imperial navy and armies, thus came to constitute an invisible national power structure that won mastery of the world's sea-lanes:

All the other world-power-stature individuals who vied for supreme mastery of the world's high seas lines of supply also operated invisibly through monarchs and nations over whom they had sufficient influence. Through such behind-the-throne influence the influenced nation's resources could be politically maneuvered into paying for the building and operation of the navies and armies that would seek to establish and protect their respective privately owned enterprises.<sup>24</sup>

The conditions of scarcity on which such imperial politics are based led to the establishment of communism and free-enterprise capitalism as a duality based on Malthus-Darwinian competition for scarce resources. Fuller describes both these systems as assuming that the means of survival are inadequate for all to survive, so that "it has to be either you or me," with not enough resources for both:

For the last century these two ideologies, *communism* and *free enterprise*, have dominated the political affairs of world-around humanity. Each side says, "You may not like our system, but we are convinced that we have the fittest, fairest, most ingenious way of coping with the lethal inadequacy of life support operative on our planet, but because there are those who disagree diametrically on how to cope, only all-out war can resolve which system is fittest to survive."<sup>25</sup>

However, for Buckminster Fuller, this destructive bipolar political struggle is based on an erroneous evaluation of the Earth's resources, and has been superseded by the new potentialities of technological invention. In a world where total energy consumption is "only one four-millionth of one percent of the rate of energy-income,"<sup>26</sup> there is potential for global liberation through an



expansion of technological capabilities. Fulfilment of this potentiality is prevented only by present anachronistic strategies, which must be surrendered:

Continuing to attempt to fit our late-twentieth-century astronautical man-on-Moon-visiting capacity into a nineteenth-century horse-and-buggy street pattern, house-to-house-yoo-hooing life-style (and a land baron racket) is so inefficient that the overall design of humanity's present social, economic, and political structuring and the physical technology it uses wastes ninety-five out of every 100 units of the energy it consumes.<sup>27</sup>

Politically, therefore, Fuller may be seen as a reformed technocrat, who assumes that contemporary scientific knowledge may be administered to improve society and redistribute wealth and resources on an equitable basis. Accordingly, the key to social change for Buckminster Fuller is a technology separate from politics:

Ninety-nine percent of humanity does not know that we have the option to "make it" economically on this planet and in the Universe. We do. It can only be accomplished, however, through a design science initiative and technological revolution.<sup>28</sup>

"Design," in Fuller's terms, includes an exploration of those areas of non-linearity and multiplicity also celebrated by Marshall McLuhan. For both writers, the design of each text as a piece of writing is itself a vital part of this revolutionary activity. The inventiveness of their multi-layered, defamiliarising texts shifts their discourses on technology away from utilitarian, pragmatic forms, making probes into areas ignored by such programmatic analyses. This exploration of language and form as revolutionary technique is a central issue in the invention of counter-strategies to technocratic control in the American fiction writers discussed at the end of this thesis, in chapters 16-20.

Buckminster Fuller's call in "Total Thinking" for a revision "not only of semantics but also of their complex aspect as thought habits employed to describe experience with accuracy..."<sup>29</sup> is a convenient bridge to the work of Alfred Korzybski. In 1938, Korzybski, a Polish emigré, opened the Institute of General Semantics in Chicago, to study links between language habits and neurotic effects on the human body.

In *Science and Sanity* (1933), Korzybski suggested the political bases of his research, as a challenge to "the ignorance of those who control our symbolism - words, money."<sup>30</sup> The mechanistic paradigm of science is considered in his work as a basis for neurotic behavioural habits. In response to this pathological system, General Semantics would be a "new extensional discipline which explains and trains us how to use our nervous systems most efficiently," by replacing the Cartesian split between mind and body with an acknowledgement of the "organism-as-a-whole."<sup>31</sup>

Korzybski's revolutionary programme seeks to liberate human beings from the neurotic controls of Aristotelian, Euclidean and Newtonian procedures. Accordingly, he considered science primarily as a linguistic system, in that "for more than two thousand years our nervous systems have been canalized in the inadequate, intensional, often delusional, aristotelian orientations, which are reflected even in the structure of the language we habitually use."<sup>32</sup> The existing social system promotes an uncritical copying of such authoritarian structures, thereby keeping human beings at the level of mere animal repetition. As a result, "nearly all of us, even now, copy animals in our nervous responses, which copying leads



to the general state of un-sanity reflected in our private and public lives, institutions and systems." <sup>33</sup>

As in McLuhan and Fuller, the reformation of language away from the archaisms of linearity and bipolarity is a strategy of resistance based on the findings of modern physics:

Modern scientific developments show that what we label 'objects' or 'objective' are mere nervous constructs inside of our skulls which our nervous systems have abstracted electro-colloidally from the actual world of electronic processes on the sub-microscopic level. And so we have to face a complete methodological departure from two-valued, 'objective' orientations to *general, infinite-valued, process orientations*, as necessitated by scientific discoveries for at least the past 'sixty years'.<sup>34</sup>

"Non-A" science therefore refuses the totalising ambitions of deterministic order, in favour of knowledge considered as time-bound, partial and relativistic. Abstract generalizations can only be provisional, in that they may exclude some data, and may break down with the discovery of new, previously unknown factors:

Through training in the consciousness of abstracting we become aware that characteristics are left out in the process of abstracting by our nervous systems, and so we become conscious of the possibility that new factors may arise at any time which would necessitate a change in our generalizations.<sup>35</sup>

Innovation is therefore enabled by the breaking of linguistic sets. The unfamiliarity produced by such ruptures may be a sign of novelty:

The introduction of new factors may at first produce seeming difficulties because of the unfamiliarity of a new terminology which embodies the new structural assumptions and because of the necessity of a recanalization of our neuro-linguistic habits, etc. <sup>36</sup>

The discovery of the unknown through linguistic and formal innovation, extrapolated from science to art, forms a basis for the experimental fiction discussed in chapters 16-20 of this thesis.

Korzybski replaces the staticising Aristotelian "is" of identity with a critique of the act of definition: "In a world of processes and non-identity it follows that no individual, 'object', event, etc., can be the 'same' from one moment to the next..."<sup>37</sup> In this way, he makes a vital connection between power and sexuality:

the intensional abstract 'sex' labels a fiction. By extension or facts, 'sex' varies with every individual not only with age (dates), but in relation to endless other factors, and can be handled adequately only by the use of extensional devices.<sup>38</sup>

In Korzybski's analysis, therefore, philosophy cannot be mere intellectualisation, but has severe implications for the health of human beings in society. Accordingly, psychosomatic problems are considered as "neuro-linguistic" in origin:

These 'philosophers', etc., seem unaware... that by teaching and preaching 'identity', which is empirically non-existent in this actual world, they are *neurologically* training future generations in the pathological identifications found in the 'mentally' ill or maladjusted.<sup>39</sup>

In this way, acts of definition and signification are seen as instruments of power, in a world where "any definition of words by words must be based ultimately on *undefined terms*."<sup>40</sup> In contrast, Korzybski's revolutionary strategies rely on a "*multiordinality*" of terms which remain "extremely flexible, full-of-conditionality."<sup>41</sup> Korzybski's linking of signification with power anticipates the reading of Nietzsche in the work of French writers such as Deleuze and Guattari, discussed in chapter 2.

Korzybski's challenges to the neuroses of power have been largely suppressed by an American scientific orthodoxy that has relegated him to a position outside the guarded boundaries of "professional" specialism. Nevertheless, his explorations of science



in terms of linguistic and mental sets, within a challenge to linear, binary habits, forms a vital basis to the discussions of technology and culture in this thesis.

Like the other writers considered in this chapter, Benjamin Whorf, who published his first essay in 1927, sought to improve scientific activity by opening up its mechanistic and deterministic structures to multiplicity and innovation. His essay "Language, Mind and Reality" (1941) analyses scientific thought as a "specialization of the western Indo-European type of language," and thereby anticipates by several decades similar approaches by Derrida and Kristeva in recent French critiques of scientific rationalism.

In Whorf's basic thesis, every language implies a cosmology, inherent in its formal structure, as a network of assumptions about the world and human society:

every language is a vast pattern-system, different from others, in which are culturally ordained the forms and categories by which the personality not only communicates, but also analyses nature, notices or neglects types of relationship and phenomena, channels his reasoning, and builds the house of his consciousness.... Each language performs this artificial chopping up of the continuous spread and flow of existence in a different way.<sup>42</sup>

The revolution in modern physics is again a crucial factor in disrupting previous assumptions about science, language and culture, as Whorf describes its fragmenting of the unitary myth of science into a new plurality of languages. Accordingly, he considers the opportunity for a non-imperialistic, anti-totalitarian science in the West:

Every language and every well-knit technical sublanguage incorporates certain points of view and certain patterned resistances to widely divergent points of view... These resistances not only isolate artificially the particular sciences from each other; they also restrain the scientific spirit as a whole from taking the next great step in

development - a step which entails viewpoints unprecedented in science and a complete severance from traditions. For certain linguistic patterns rigidified in the dialectic of the sciences - often also embedded in the matrix of European culture from which those sciences have sprung, and long worshipped as pure Reason per se - have been worked to death. Even science senses that they are somehow out of focus for observing what may be very significant aspects of reality, upon the due observation of which all further progress in understanding the universe may hinge.<sup>43</sup>

Scientific activity will be renewed by replacing "Reason," as an apparently singular, non-problematic method, with viewpoints from outside Indo-European orthodoxy. Whorf gives as an example the Coeur d'Alene tribe of Idaho, whose language includes three verb-forms for "cause." This notion of "triadic causality" would provide a "new tool for science," if speculated upon by open-minded, non-dogmatic scientists.<sup>44</sup>

However, there are problems with Whorf's analysis, the theoretical bases of which tend to be staticising and deterministic. The "house" of consciousness, described in the earlier quotation, has its implication of an inflexible enclosure amplified by Whorf's comparison of the human mind with a railway track, rule-bound and determined:

thinking also follows a network of tracks laid down in the given language, an organization which may concentrate systematically upon certain phases of reality, certain aspects of intelligence, and may systematically discard others featured by other languages. The individual is utterly unaware of this organization and is constrained completely within its unbreakable bonds.<sup>45</sup>

The determinism of Whorf's position in this essay also tends to ignore the existence of multi-lingual peoples, as well as the human capacity for learning and development in time. However, despite these remnants of static, perspectival thinking, Whorf's pioneering analyses play a vital part in questioning orthodox power areas in



twentieth century America, and in challenging the racist and imperialist assumptions of superiority in Western (or W.A.S.P.) science and technology.

Whorf's challenge to the centrality of Western science, conceived in terms of culturally specific linguistic practices, has been taken up in recent French thought by such figures as Derrida, Foucault and Kristeva. These developments, occurring decades after the American explorations into science and culture discussed in this chapter, will be the topic of chapter 2.

## CHAPTER 2.

### Resources on science, technology and culture: France since 1945.

This chapter will approach French writers and philosophers since World War Two as resources for investigations into science, technology and culture. The work of Derrida, Foucault, Barthes, Bataille, Serres, and Deleuze and Guattari may be seen as a response to the failures of Marxist dialectics, seeking new possibilities of resistance to imperialistic state power. In order to locate such discussions within a wider historical context of European thought, similarities will be drawn with the work of Gramsci and Reich, as antecedents for such strategies. In their reading of Nietzsche, contemporary French writers have introduced the notion of "jouissance," as a liberation of desire, which will be seen to extend into areas of scientific and technological production.

In his essay "White Mythology" (1982), Jacques Derrida exposes the imperialist groundings of Western philosophy since Plato and Aristotle. Based on a model of language as mimesis, this "white mythology" assumes the possibility of transparent, unmediated access to an external reality, guaranteed by the power of human reason to apprehend directly the fixed and universal truths of an objective nature.

By repressing the fictiveness and constructed nature of language and philosophy, this totalising myth of truth suppresses other epistemological systems outside its own domain. In Derrida's words, the white man

takes his own mythology, Indo-European mythology, his own *logos*, that is, the *mythos* of his idiom, for the universal form of that he must still wish to call Reason. Which does not go uncontested... White mythology - metaphysics has erased within itself the fabulous scene that has produced it, the scene that nevertheless remains active and stirring, inscribed in white ink, an invisible design covered over in the palimpsest.'

For Derrida, the emphasis on denotation and singular truth in Western thought, from the *aletheia* of Aristotelian linguistic theory, imposes tyrannical closure on a free-play of meaning and desiring production:

*Aletheia*: the proper appearing of the propriety of what is, the entire system of concepts which invest the philosopheme "metaphor", burden it in delimiting it... All the onomatism which dominates the theory of metaphor, and the entire Aristotelian doctrine of simple names... is elaborated in order to assure harbors of truth and propriety.<sup>2</sup>

Derrida challenges the security provided by the absolutism of truth-value, as a means of liberating desire. A similar attack on an imperialistic totalitarianism operating under the rubric of scientific truth has also been made by Michel Foucault.

In *The Archaeology of Knowledge*, Foucault suggests that science, or what he calls "scientificity," works by the application of a singular law, to the exclusion of other discourses:

Only propositions that obey certain laws of construction belong to a domain of scientificity; affirmations that have the same meaning, that say the same thing, that are as true as they are, but which do not belong to the same systematicity, are excluded from this domain...<sup>3</sup>

The hegemony of scientific values in modern industrial society, claiming privileged access to a universal and trans-historical truth, is countered by Foucault's relocation of truth-value within historically specific processes of mediation. In *Power, Truth,*



*Strategy* (1979), he describes the production of truth as a function of power:

Each society has its regime of truth, its "general politics" of truth: that is, the types of discourse it harbours and causes to function as true; the mechanisms and instances which enable one to distinguish true from false statement, the way in which each is sanctioned; the techniques and procedures which are valorised for obtaining truth; the status of those who are charged with saying what counts as true.<sup>4</sup>

In modern capitalist society, the "political economy" of truth is based on the centrality of science, as a cultural network of inter-relationships:

"truth" is centred on the form of scientific discourse and the institutions which produce it; it is subject to a constant economic and political incitation (the demand for truth, as much for economic production as for political power): it is the object, in diverse forms, of an immense diffusion and consumption (it circulates in apparatuses of education and information whose extent is relatively wide within the social body, notwithstanding certain strict limitations); it is produced and transmitted under the control, dominant if not exclusive, of a few great political or economic apparatuses (university, army, writing, media...); lastly, it is the stake of a whole political debate and social confrontation ("ideological" struggles).<sup>5</sup>

Foucault thus rejects a consolatory Marxist inheritance of dialectical or bipolar simplifications, such as the base-superstructure model. Instead, he opens up opportunities for a multiple, cultural studies approach to issues of power and technology in modern society. As its title suggests, *The Archaeology of Knowledge* explores a multi-layered, non-linear approach that refuses totalitarian quests for a single centre of meaning or truth. As Foucault puts it, in the passage already quoted in the Introduction to this thesis, a total description "draws all phenomena around a single centre - a principle, a meaning, a spirit,

a world-view, an overall shape," whereas "a general history, on the contrary, would deploy the space of a dispersion."<sup>6</sup>

Foucault's dispersions challenge habitual misunderstandings of the modern state as a monolithic centre of power. In his complex archaeology, power is not simply possessed by some members of a society, and not by others. Neither does power simply have a prohibitive function. Rather, it is a multiple network that includes desires, permissions and pleasures:

If power was never anything but repressive, if it never did anything but say no, do you really believe that we should manage to obey it? What gives power its hold, what makes it accepted, is quite simply the fact that it does not simply weigh in like a force which says no, but that it runs through, and it produces, things, it induces pleasure, it forms knowledge, it produces discourse; it must be considered as a productive network which runs through the entire social body much more than as a negative instance whose function is repression.<sup>7</sup>

State power is thus seen to be parasitical on a multiplicity of different power relations which involve all members of a society. Foucault gives two reasons for choosing this decentred model of power relations:

first of all because the State, for all the omnipotence of its apparatuses, is far from being able to occupy the whole field of actual power relations, and further because the State can only operate on the basis of other, already existing power relations. The State is superstructural in relation to a whole series of power networks, that invest the body, sexuality, the family, kinship, knowledge, technology and so forth. True, these networks stand in a conditioning-conditioned relationship to a kind of "metapower" which is structured essentially round a certain number of great prohibition functions; but this meta-power with its prohibitions can only take hold and secure its footing where it is rooted in a whole series of multiple and indefinite power relations that supply the necessary basis for the great negative forms of power.<sup>8</sup>



Foucault's field model of state power recalls Antonio Gramsci's questioning of Marxist dialectics in his essay, "The Intellectuals" (1927). Gramsci's concept of "hegemony" as a force of cultural domination made a decisive break with Marxist views of power as concentrated in a single centre. For Gramsci, social domination by the ruling class depends on its organisation of society as a whole, "because of the need to create the conditions most favourable to the expansion of their own class..."<sup>9</sup> Gramsci's language is multiplicatory, rather than singularising, as he writes of the "ensemble of the system of relations" within "the general complex of social relations."<sup>10</sup> The two major levels of society he identifies are involved in these complexities:

the one that can be called "civil society", that is the ensemble of organisms commonly called "private", and that of "political society" or "the State". These two levels correspond on the one hand to the function of "hegemony" which the dominant group exercises throughout society and on the other hand to that of "direct domination" or command exercised through the State and "juridical" government. The functions in question are precisely organisational and connective. The intellectuals are the dominant group's "deputies" exercising the subaltern functions of social hegemony and political government. These comprise:

1. The "spontaneous" consent given by the great masses of the population to the general direction imposed on social life by the dominant fundamental group; this consent is "historically" caused by the prestige (and consequent confidence) which the dominant group enjoys because of its position and function in the world of production.

2. The apparatus of state coercive power which "legally" enforces discipline on those groups who do not "consent" either actively or passively. This apparatus is, however, constituted for the whole of society in anticipation of moments of crisis of command and direction when spontaneous consent has failed.'

Gramsci's complex model of social interactions between command and consent is a vital antecedent to the challenges to orthodox Marxism made by the French writers discussed in this chapter. Roland



Barthes' movement out of simple left-right dichotomies, in his analysis of cultural signs as "simultaneously imposed and demanded," quoted in the Introduction, may be seen as a comparable revision of dialectical simplifications.

Another important precursor of recent French critiques of Marxism is Wilhelm Reich. In *The Mass Psychology of Fascism* (3rd. ed 1942), Reich investigated the erotic bases of sacrifice and power in terms of the specific structures of twentieth century industrial society, asking the vital question for the future possibilities of freedom from sacrificial history: "What causes the human animal to deteriorate and become robotlike?" Reich concludes that "the complete identity of mechanistic natural science, mechanical human structure and sadistic murder" dominate the twentieth century as a deadly mechanical trinity. As mechanistic habits become incorporated biologically, human beings fatally identify themselves with lifeless routines of obedience and subservience.<sup>12</sup>

Reich locates the development of the authoritarian state in the twentieth century in sexual neurosis, which makes freedom impossible:

Since the working man's structure and capacity for freedom were too inhibited to enable him to adapt to the rapid development of social organizations, it was the 'state' that carried out those acts that were actually reserved for the 'community' of working man.<sup>13</sup>

This authoritarian state, working through family structures, suppresses healthy erotic life, and thereby produces human beings mechanically obedient to authority. Reich draws attention to the repressed "animal" part of the human being in the realities of "his body functions, procreation, birth and death, sexual urge and

dependency upon nature."<sup>14</sup> Mechanistic control of the erotic body is never total, therefore, and resistances are both necessary and possible. Although Reich himself was attracted by a total system, based on the "orgone," his insights into the destructiveness of mechanistic habits remain crucial to a complex understanding of power relations in modern society.

*The Mass Psychology of Fascism* also challenges the use of mechanical or technological models to interpret human society, showing them as alibis to create permission for mastery and control by the ruling class. Intellectual models that liken human beings to machines perpetuate repression and slavery. In contrast, for Reich, the machine *"will continue to be his (man's) most dangerous destroyer, if he does not differentiate himself from it."*<sup>15</sup>

Fascism was for Reich the most extreme form of mechanistic deadliness and rigidity. The mysticism and sadistic violence at the centre of Nazism is a perverted form of those bodily life functions repressed by mechanistic codes of behaviour and thought. For the authoritarian personality,

as he denies and suppresses every aspect of this nature, he cannot embrace it in a rational and living way. Hence, he has to experience it in a mystical, other-worldly and supernatural way, whether in the form of religious ecstasy, cosmic unification with the world soul, sadistic thirst for blood or 'cosmic seething of the blood'... Human mysticism, which thus represents the last traces of vitality, also became the fountainhead of mechanical sadism in Hitlerism.<sup>16</sup>

Georges Bataille's *Eroticism* (1957) further explores the sexual bases of power. As with Reich, Bataille's analysis of human passions disrupts Enlightenment liberal preoccupations with rationality and order, as he affirms that "we must never imagine existence except in terms of these passions."<sup>17</sup>



Bataille's work connects eroticism, violence and death in terms of the desire for continuity experienced by human beings created as discontinuous individuals through sexual reproduction:

We are discontinuous beings, individuals who perish in isolation in the midst of an incomprehensible adventure, but we yearn for our lost continuity. We find the state of affairs that binds us to our random and ephemeral individuality hard to bear. Along with our tormenting desire that evanescent things should last, there stands our obsession with a primal continuity linking us with everything that is.<sup>19</sup>

This nostalgic desire for continuity will recur throughout this thesis, in the totalising projections of scientific and technocratic systems-builders. The search for continuity produces a history of sacrifice:

A violent death disrupts the creature's discontinuity; what remains, what the tense onlookers experience in the succeeding silence, is the continuity of all existence with which the victim is now one.<sup>19</sup>

For both Reich and Bataille, therefore, violence and totalitarian desires for unity are symptoms of erotic neurosis.

The recent work of Michel Serres may also be seen as an exploration of possibilities of ending such sacrificial repetitions. Serres' history of science explores the possibility of pleasure and play within science, following the breakdown of Newtonian obsessions with rationality, universal truth and determinism. However, Serres' work also tends to emphasise the militaristic bases of scientific order as an authoritarian power system that reaches into the very methodological practices of science itself.

Serres is wary of basing his arguments about power in terms of "legitimation," asserting instead that, "All powers seek to be legitimate since, abusive by nature, they always lack legitimacy."<sup>20</sup>



This abusiveness of power is the basis of a global history of war and sacrifice. As in Foucault, Western science's claim to exclusive, universal truth dominates and controls the production of knowledge, so that manias for militaristic dominance, exploitation and destruction inform modern science, from its acceleration in the sixteenth century. For Serres, this science implies relationships between the human and non-human based not on mutuality and respect, as in an ideal contract, but rather on war and competitive struggle. Scientific method is "no longer a contract but a strategy, a tactic and not a pact, a fight to death and not a coitus."<sup>21</sup>

However, Serres' work tends to view the militaristic basis of scientific rationality as a transhistorical phenomenon, as a law that obtains "everywhere":

The order of reasons is repetitive, and the train of thought that comes from it, infinitely iterative, is but a science of death. A science of dead things and a strategy of the kill. The order of reasons is martial. The world is in order, according to this mathematical physics in which the Stoics are met by Plato up the line and by Descartes further down, and where order reigns supreme over piles of cadavers. The laws are the same everywhere; they are thanatocratic. There is nothing to be learned, to be discovered, to be invented, in this repetitive world, which falls in the parallel lines of identity.<sup>22</sup>

Serres' argument, itself based on totalising words such as "is but" and "everywhere," thus tends to essentialise scientific rationality as inevitably destructive, suggesting that the abusiveness of science runs deeper than its specific social and political organisation.

Yet this dehistoricised position is merely one tendency in Serres' complex writing. Elsewhere, he investigates possible alternative strategies for scientific activity, to counter modern

science's militaristic basis in alienation from, and hatred of, the object. He suggests the need for a new "contract" with nature, that will give back to the object its autonomy from total control. This new science, avoiding the fraudulent projection of political schemas onto phenomena, will co-exist with an object "not bound by a commandment but self-directed."<sup>23</sup>

The problem hindering the emergence of this new science is that of "stemming a series of murders without another assassination."<sup>24</sup> Serres contrasts the martial basis of Western science since Descartes with the idea of a contract with nature in the physics of Lucretius, whose *De Rerum Natura* he sees as a physics of Venus rather than of Mars, of peace and creativity rather than of guilt and dominance. Instead of certainty and law, there is recognition of stochastic elements and instability, and a breaking out of deterministic inevitabilities.

The recent work in non-equilibrium thermodynamics by Ilya Prigogine and Isabelle Stengers, described and extrapolated upon in *Order out of Chaos* (1984), suggests that this new, non-militaristic paradigm for science is emerging. Prigogine's findings challenge deterministic theories of entropy, showing that, in "far-from-equilibrium" states, instability may lead to new behaviour unpredicted from initial conditions. His "dissipative structures" break with classical physics by allowing randomness and chance to play an organisational function in certain phenomena.

In chemistry, appearances of dissipative structures are highly specific to the detailed chemical mechanisms involved. A sense of multiplicity and specificity therefore replaces any notion of a

general law applicable in all instances. As Prigogine and Stengers put it:

In contrast with close-to-equilibrium situations, the behavior of a far-from-equilibrium system becomes highly specific. There is no longer any universally valid law from which the overall behavior of the system can be deduced. Each system is a separate case; each set of chemical reactions must be investigated and may well produce a qualitatively different behavior.<sup>25</sup>

Moreover, in this new science, randomness becomes an inherent part of order, as the presence of random fluctuations in a system may produce a new, unpredictable type of behaviour for that system. In this way, both determinism and randomness may characterise the history of a system:

Both the deterministic character of the kinetic equations whereby the set of possible states and their respective stability can be calculated, and the random fluctuations "choosing" between or among the states around bifurcation points are inextricably connected. This mixture of necessity and chance constitutes the history of the system.<sup>26</sup>

Non-equilibrium science is thereby open to unexpected novelty and diversity, which can no longer be subsumed under a notion of mechanistic predictability:

Both at the macroscopic and microscopic levels, the natural sciences have thus rid themselves of a conception of objective reality that implied that novelty and diversity had to be denied in the name of immutable universal laws. They have rid themselves of a fascination with a rationality taken as closed and a knowledge seen as nearly achieved. They are now open to the unexpected, which they no longer define as the result of imperfect knowledge or insufficient control.<sup>27</sup>

As a result, Prigogine and Stengers claim that their new "science of complexity" is "now capable of respecting the nature it investigates."<sup>28</sup>

This recent work in chemistry and statistical mechanics may be proposed as an example of Serres' non-militaristic science. In this



way, it may also be seen as an example of what Deleuze and Guattari call "nomad" science, in which difference and heterogeneity replace the deterministic uniformity, equilibrium and stasis preferred by what they call "royal" science. In such an analysis, the work of Nietzsche is clearly an important resource, as it is for the emphasis on heterogeneity, difference and free play in most of the French writers discussed in this chapter. In this respect, Deleuze's *Nietzsche and Philosophy* (1962) locates modern French thought within its historical context as a continuation of Nietzsche's attack on French rationalism and German dialectics.

Deleuze quotes Nietzsche's *Beyond Good and Evil* (1886): "The pleasure of knowing oneself different":

the enjoyment of difference... this is the new, aggressive and elevated conceptual element that empiricism substitutes for the heavy notions of the dialectic and above all, as the dialectician puts it, for the labour of the negative. It is sufficient to say that dialectic is a labour and empiricism is an enjoyment.<sup>29</sup>

The notion of "jouissance" in many of the writers discussed in this chapter thus suggests possibilities for revolutionary disruptions of order, liberating pleasure and joy, rather than sacrifice and militaristic dominance, in science, technology and society. Following Nietzsche, therefore, these writers do not simply perpetuate a Romantic, anti-scientific espousal of the qualitative rather than the quantitative. As Deleuze puts the issue:

Nietzsche, as critic of science, never invokes the rights of quality against quantity; he invokes the rights of difference in quantity against equality, of inequality against equalisation of quantities... What he attacks in science is precisely the scientific mania for seeking balances, the *utilitarianism* and *egalitarianism* proper to science. This is why his whole critique operates on three levels; against logical identity, against mathematical equality and against physical equilibrium.<sup>30</sup>

The "nomad" science described in *Nomadology* (1986) is thus a subversion of the practices of a state science which aims to found stable territories based on equilibrium and static order.

In *Molecular Revolution* (1984), Félix Guattari further explores the possibility of a liberation of desire in scientific and technological designs, while revealing the political workings of state, technocratic science. Like Foucault, he shows that the claims of state science to truth, representation and signification are alibis of domination and control for the bourgeois ruling class. As state science fixes a gaze of power in the guise of representation, Guattari explores a counter-politics to "enable all the intensive multiplicities to escape from the tyranny of the signifying over-encoding."<sup>31</sup>

Denotation, representation and signification are the main territorializing actions by which power systems seek to dominate other forms of knowledge:

Referential thought, understanding, interpretation, the transcendentalizing of distinct, concrete objects, and dogmatism all proceed from the same method of subjecting people to the dominant statements and significations. Every statement has to be understood within the pre-established area of exclusive bi-polar values, and every semiotic sequence has to leave the realm of its original machinic formation to enter the systems of official expression of signification and representation.<sup>32</sup>

Guattari's critique of power-based linguistic systems thus draws on findings made in the 1920s by Korzybski and Whorf on the social and linguistic bases of perception.

For Guattari, a liberation of de-territorialized *jouissance* breaks up these referential closures, so that "the fixed, syntactized, semanticized and rhetoricized stratification of



messages gives way to a collective engagement of utterance with unnumbered dimensions."<sup>33</sup> Guattari argues that this play of desire should be more generally acknowledged and encouraged in terms of scientific and technological creativity. By inventing "a-signifying particle-signs," modern physicists pioneer a replacement of power-based referential systems by a liberatory ethic of imagination and deterritorialisation. Accordingly, desire,

once freed from the control of authority, can be seen as more real and more realistic, a better organizer and more skilful engineer, than the raving rationalism of the planners and administrators of the present system. Science, innovation, creation - these things proliferate from desire, not from the pseudo-rationalism of the technocrats.<sup>34</sup>

*Molecular Revolution* thus investigates polyvocal and anti-hierarchical systems of *n* articulations, in which various non-signifying semiotics "combine their efforts without any one of them over-encoding the others."<sup>35</sup> Scientific activity is thereby freed from utilitarianism, for *jouissance*. It is "man's specific capacity for de-territorialisation that enables him to produce signs for no purpose: not negative signs, not nothing signs, but signs to play about with for fun, for art."<sup>36</sup>

Deleuze and Guattari's rejection of Romantic panics about science and technology thus opens the way for challenges to the utilitarian, productivist regime in which science and technology operate in modern technocratic society. As such, their work, with the other writers examined in chapters 1 and 2, provides a vocabulary field within which the rest of this thesis will discuss science and technology in American culture.



### CHAPTER 3.

#### Newtonian science and power in early nineteenth century America.

. This chapter will explore some of the writings of Thomas Jefferson, Elihu Palmer, and Charles Brockden Brown in terms of issues of natural law, empirical certainty and utilitarian control. Newtonian science is shown as an American inheritance from Europe, extending in the new Republic as a project of national security and growth.

American leaders in the colonial and early Republican era tended to deploy commonplace word-ideas such as "science," "law" and "nature," familiar concepts in Newtonian physics, as guarantees for the right of technical elites to control society. According to these assumptions, human social behaviour was controlled by generalised, mechanical laws as "natural" as the fall of physical objects under gravity, so that a deterministic science of human morality and social behaviour could be discovered. In this way, societal law was assumed to be natural, and therefore inevitable, rather than socially constructed and changeable. The desire to extend Newton's formulations beyond physics into the workings of human society was a crucial American inheritance from eighteenth century Europe.

After the Revolutionary War, Thomas Jefferson ensured that the liberal, individualist principles of property rights, unregulated markets and representative government, inherited from the political theories of John Locke, were built into the American Declaration of Independence (1776). The opening sentence of the Declaration evokes

the ultimate authority of the "laws of nature and nature's God" to justify the new nation's programme of separate and equal development from Britain. The law-bound, regular order by which the physical universe was interpreted was thereby taken as an adequate model for the government of human society, giving permission for power elites in America to carry out their programmes of social development.'

Elihu Palmer's *Principles of Nature; or a Developement of the moral causes of happiness and misery* (1819) is a strong statement of belief in the power of Newtonian determinism as a model for society. The word-idea "nature," as the title suggests, is used throughout as a guarantor of the unquestionable truth and efficacy of Palmer's arguments. The preface states his intention to "settle moral arguments not from religious authority but from evidence." Such empirical knowledge of "nature," it is claimed, will provide a firm basis for deciding all moral issues in human society. The universalist tendencies of Newtonian thought thus suggest infinite prospects for knowledge and progress.<sup>2</sup>

Palmer employs key nineteenth century word-ideas, such as "energy," "organic," and "progress," as mystificatory tokens, to win permission for power and political control. He links Enlightenment science with desires for security and consolation:

The sources of hope and consolation to the human race are to be sought for in the energy of the intellectual powers. To these, every specific amelioration must bear a constant and invariable reference; and whatever opposes the progress of such a power, is unquestionably in most pointed opposition to the best and most important of interests of our species. The organic construction of man induces a strong conclusion that no limits can possibly be assigned to his moral and scientific improvements.

The strength of the human understanding is incalculable, its keenness of discernment would ultimately penetrate into



every part of nature, were it permitted to operate with uncontrolled and unqualified freedom.<sup>3</sup>

Palmer claims unlimited permission to extend control as a totalising and penetrative drive throughout the universe. However, his emphasis on the "intellectual powers" also suggests a repression of the body, perpetuating the radical separation of "head" from "heart" that is viewed by many nineteenth century writers as having destructive consequences for human beings in society. The work of Poe, Hawthorne and Melville, in this connection, will be discussed in the next three chapters.

Palmer carefully fixes the "intellectual powers" of human beings within a utilitarian context:

It is not sufficient that man acknowledges the possession of his intellectual powers, it is also necessary that these powers should be developed, and their force directed to the discovery of correct principle, and the useful application of it to social life...<sup>4</sup>

Daniel S. Greenberg's study of *The Scientific Community* (1969) shows that scientific activity in the early Republic was largely placed within this utilitarian context of applied knowledge. This emphasis in American scientific practice was evident from its early stages, with the founding of the "American Philosophical Society" in 1743, and its subsequent amalgamation in 1766 with the "American Society for Promoting and Propagating Useful Knowledge." As Greenberg records, the American government esteemed, and was prepared to give financial support to, the "tinkerer, the gadgeteer, the Yankee engineer" who could translate knowledge into utility. It thereby promoted science and technology in terms of public programmes, in areas such as surveying, navigation, the standardisation of weights and measures, and public health.



Accordingly, attitudes to basic scientific research were less permissive. In the first half of the nineteenth century, American science was badly funded, in comparison with science in Europe, which was flourishing with the works of major figures such as Dalton, Faraday and Helmholtz. Although in both America and Europe, science was still largely a profession of wealthy gentlemen, basic science in Europe was also able to draw upon the resources of princely and commercial patronage, and of government-supported universities and research institutes. In America, on the other hand, "there were no princes, industry was yet to recognize the profitability of science, and government was concerned with utility, not fundamental knowledge." Accordingly, in the 1840s, Congress took nearly a decade to accept the bequest of the British chemist James Smithson, for the establishment of an institution for "the increase and diffusion of knowledge among men," a project that finally became the Smithsonian Institution in Washington.<sup>5</sup>

The hegemony of utilitarian values was based on Newtonian assumptions of scientific empiricism and representation. Elihu Palmer's *Principles of Nature* follows orthodox Newtonian myths of induction and empiricism by appealing to an independent world of facts accessible to neutral, value-free scientific observation. According to such Newtonian methodology, the universe was simple and uniform, a deterministic machine, whose workings were transparent to correct empirical procedures. Palmer shows typical faith in the certainty of these methods:

Man will never cease to be erroneous in his reasonings, while he departs from the simple and uniform ground of nature - the only solid basis of all conclusive argumentation - the only true source of all important science. It is in the physical constitution of existence, in

its real relations, in its energies, in its effects, that he must seek for the principles by which to construct an useful and well-cemented fabric - by which to arrange and methodize thought, and apply it to the diversified purposes of human life. The imperfection of his faculties does not enable him to seize upon all these objects in such a manner as to preclude the possibility, even probability, of many errors; but these errors are to be destroyed only by a constant recurrence to the fundamental data, from which correct conclusion must ever be deduced."

Palmer's desire to "methodize thought," and then to apply such fixed procedures to the "diversified purposes of human life," relies for its assertion of truth-value on a vocabulary of origin, representation and epistemological certainty - "conclusion," "ground," "solid basis," "true source," "correct."

However, the corollary of empirical science's claim to universal truth is its suppression of the imaginative faculties of human beings as ineffectual in the search for a correct representation of truth. Accordingly, Palmer outlaws certain human activities:

Man has lost himself in the wanderings of a fantastic imagination, in the fleeting dreams of fanaticism, and the malignant fury of a blind superstition; he has sought for truth where it is not to be found: his mind has diverged from the line of reality, and he has become the victim of innumerable prejudices.

... The simplicity, the uniformity, the grandeur of the physical universe, have been abandoned, while the fictions and non-entities of delirious mortals have been substituted as the ground of evidence, and the principle of correct conclusion."

Palmer has faith in the basis of Enlightenment liberalism in notions of rationality and objective truth. The totalitarianism of such a position, which excludes any "wanderings" of the imagination away from the singular, rationalist "line of reality," is resisted elsewhere in early nineteenth century industrial culture. In Hawthorne and Melville, drifters beyond enclosures are celebrated,

if somewhat ambivalently, and boundary-crossing movements are vital for health."<sup>9</sup>

Elihu Palmer promises utopia as the final destination of a linear, Faustian history, and thereby provides an alibi for a continuation of the status quo:

The period is at hand, in which kings and thrones, and priests and hierarchies, and the long catalogue of mischiefs which they have produced, shall be swept away from the face of the earth, and buried in the grave of everlasting destruction. Then will arrive the era of human felicity, in which the heart of unfortunate man shall be consoled; then will appear the movement of national consolation, and universal freedom; then the empire of reason, of science, and of virtue, will extend over the whole earth, and man, emancipated from the barbarous despotism of antiquity, will assume to himself his true predicament in nature, and become a standing evidence of the divinity of thought and the unlimited power of human reason."<sup>10</sup>

This bourgeois desire for "national consolation" is also evident in the writings of Thomas Jefferson. In a letter to William Ludlow, written in 1824, Jefferson wrote of the evidence of progress he observed in a journey across the United States, which took him from "the savages of the Rocky Mountains" to the "as yet, most improved state" of human development "in our seaport towns." "Barbarism," for Jefferson, has "been receding before the steady step of amelioration; and will in time, I trust, disappear from the earth." As in the last quotation from Elihu Palmer, the counter-term "barbarism" is used to guarantee the universal values of bourgeois "civilization," as the inevitable end of nationalist material progress.<sup>11</sup>

As in Elihu Palmer, Jefferson deploys mechanistic and utilitarian assumptions in the service of a repressive, totalitarian system of reductive materialism. In a letter to John Adams, written



on August 15, 1820, Jefferson makes a sweeping rejection of all ideas that contradict his own rigidly materialist orthodoxy. Doubts must not be entertained:

To talk of *immaterial* existences, is to talk of *nothings*... Rejecting all organs of information, therefore, but my senses, I rid myself of the pyrrhonisms with which an indulgence in speculations hyperphysical and antiphysical, so uselessly occupy and disquiet the mind. A single sense may indeed be sometimes deceived, but rarely; and never all our senses together, with their faculty of reasoning. They evidence realities, and there are enough of these for all the purposes of life, without plunging into the fathomless abyss of dreams and phantasms. I am satisfied, and sufficiently occupied with the things which are, without tormenting or troubling myself about those which may indeed be, but of which I have no evidence.''

Jefferson's aggressive materialism shows the totalitarian drive within state science to dominate, exploit, and finally to eradicate those human beings, and their forms of knowledge, in opposition to its basic assumptions. Newtonian faith in the solidity and exteriority of matter provides security against a "fathomless abyss" of subjectivity. However, this officially sanguine, deterministic version of history, in Elihu Palmer and Thomas Jefferson, has been subjected to sceptical examination throughout American history. Many writers have become suspicious of the rise of technical experts with power to control other human beings, possibly against their will or better interests. The desire for "consolation" in the apparent certainties of materialism is questioned, and the work of technicians and scientists is shown to be not neutral, and not necessarily explicable according to Enlightenment myths of progress, emancipation and objective truth.

In Charles Brockden Brown's *Wieland; or the Transformation* (1798), key words - "certainty," "plausibility," "evidence,"



"testimony," "belief," "doubts" - recur throughout the novel to question commonplace notions of empirical certainty and the simple verifiability of facts. Moreover, Brown relates such epistemological issues to an investigation of science, knowledge and power in the early Republic.

Carwin's ventriloquist acts are presented as a question of how certain an observer can be of sensory data, as Brown's fiction introduces scepticism and doubt into the smug certainties of empiricist and rationalist methodologies. Deceived into thinking he has heard Catherine's voice on the hill outside the house, Pleyel is confused, because he is certain that she has been sitting in the house all the time: "Certain it is, if our eyes can give us certainty..."<sup>12</sup> Later, Clara is forced by Pleyel to justify her innocence, against the testimony of the latter's senses, "witnesses the most explicit and unerring, of those which support the fabric of human knowledge."<sup>13</sup> In *Wieland*, unquestioning trust in sensory evidence opens the way for manipulation by power interests. Only constant vigilance may protect human beings from the dangers of external control.

Brown presents Pleyel's erroneous deductions about Clara's behaviour as a misinterpretation of signs. Given that Pleyel had heard Clara's footsteps as she returned to her room at night, "In what other way was it possible for him to construe these signals?"<sup>14</sup> Interpretation is thus already a dangerous activity in American literature, as Carwin's manipulations transform the *Wieland* household into a scene of "blasted hopes and changeable fortune,"<sup>15</sup> markedly different from the utopian projections of Palmer and



Jefferson. Brown's fiction exposes those mechanisms of power under whose influences America itself falls from an Eden of new possibilities to an irreversibly damaged, exploitative society. Accordingly, *Wieland* explores fears that technical expertise can be used by powerful figures to manipulate human beings against their will, and investigates the susceptibility of human beings to control by others. Carwin's "dangerous experiments"<sup>16</sup> cause ruin, as he becomes an early instance in American fiction of the evil, or at least morally duplicitous, technical expert.

Carwin's power over others is based partly on his flexibility and cunning, as he plays a role similar to that of Hermes in Greek mythology. A "murderer and thief,"<sup>17</sup> he invades the *Wieland* household like a parasite, an "imp of mischief" who causes disaster.<sup>18</sup> He is able to change his identity to suit his purposes, so that, having previously transformed himself into a Spanish Catholic to survive and prosper in Spain, Carwin enters the American community in the "garb of a rustic."<sup>19</sup> Such duplicity is dangerous, making correct interpretation of motive and action difficult. Accordingly, Clara comes into contact with the "impenetrable veil of his duplicity,"<sup>20</sup> so that she "could not calculate the motives and regulate the footsteps of this person."<sup>21</sup>

In *Wieland*, therefore, Carwin's actions are presented as morally ambiguous, rather than as unequivocally evil. He confesses to have "handled a tool of wonderful efficacy without malignant intentions, but without caution..."<sup>22</sup> He has "rashly set in motion a machine, over whose progress I had no controul, and which experience had shown me was infinite in power..."<sup>23</sup> Complacent assumptions of



mechanistic control and of progress thus become dangerously problematic, given the exercise of irresponsible power in society.

In Brown's unfinished "Memoirs of Carwin, The Biloquist," Carwin and Ludloe take pleasure in their sense of superiority and domination over others:

I was actuated by ambition. I was delighted to possess superior power; I was prone to manifest that superiority, and was satisfied if this were done, without much solicitude concerning consequences.<sup>24</sup>

Like Dr. Benway, William Burroughs' late twentieth century scientist, Brown's Carwin takes pleasure in his performance, without thought to the consequences his actions might have on the well-being of others.

Brown's fiction is thus already concerned with the dangers of abuse of those "intellectual powers" complacently trusted by Elihu Palmer. In *Wieland*, Ludloe describes Carwin as "engaged in schemes, reasonably suspected to be, in the highest degree, criminal, but such as no human intelligence is able to unravel."<sup>25</sup> As an exceptional figure, Carwin's power might be deemed a threat to bourgeois notions of egalitarianism. At first, his high degree of education, and his powers as a communicator, are viewed as a positive attribute. For Clara, "No man possessed a larger store of knowledge, or a greater degree of skill in the communication of it to others; hence he was regarded as an inestimable addition to our society."<sup>26</sup> However, Carwin then proceeds to use his skills and intelligence to manipulate others, so that exceptional powers are viewed as a threat. His voice is such that, as Clara says, "an heart of stone could not fail being moved by it. It imparted to me an emotion altogether involuntary and incontrollable."<sup>27</sup> This ability

to incite automatic behavioural responses through the exercise of invisible powers is one of the main sources of Carwin's control.

Carwin succeeds in eliciting automatic responses from others because he understands their desires and needs, having "constructed his plot in a manner suited to the characters of those whom he had selected for his victims."<sup>28</sup> In particular, he exploits Wieland's susceptibility to total religious interpretations of reality.

Wieland's religious training has fixed him in dogmatic necessities, so that, as Clara puts it, "Moral necessity, and calvinistic inspiration, were the props on which my brother thought proper to repose."<sup>29</sup> Wieland attempts to fit all the evidence of his senses into a single, deterministic system, the prop of necessity on which he seeks "repose" and security. However, this need for totalisation is the basis of his downfall.

Early in the novel, Clara is afraid that her brother's religious beliefs will lead him to make false and dangerous conclusions from empirical evidence:

The will is the tool of the understanding, which must fashion its conclusions on the notices of sense. If the senses be depraved it is impossible to calculate the evils that may flow from the consequent deductions of the understanding.<sup>30</sup>

In the rest of the novel, Wieland's senses are indeed shown to be depraved, as he fails to ascertain the objective truth of external facts, in accordance with the consoling securities of Enlightenment reason. This failure of empirical interpretation, which ultimately ends in Wieland sacrificing his family, is founded in his fixity of mind, his compulsion to interpret signs according to mental habits:

Those ideas which, in others, are casual or obscure, which are entertained in moments of abstraction and solitude, and easily escape when the scene is changed, have obtained an



immoveable hold upon his mind. The conclusions which long habit has rendered familiar, and, in some sort, palpable to his intellect, are drawn from the deepest sources. All his actions and practical sentiments are linked with long and abstruse deductions from the system of divine government and the laws of our intellectual constitution.<sup>31</sup>

Wieland evaluates sensory experience according to a single system of belief, interpreted in terms of law and habit. This dogmatic insistence on law, for security and consolation, is thus shown to be potentially damaging.

In "Memoirs of Carwin, the Biloquist," Ludloe suggests to Carwin that some people's desire to believe in the existence of invisible, supernatural beings is a point of weakness and gullibility that may be exploited. His language draws on images of mechanistic determinism and predictability:

No more powerful engine, he said, could be conceived, by which the ignorant and credulous might be moulded to our purposes; managed by a man of ordinary talents, it would open for him the straightest and surest avenues to wealth and power.<sup>32</sup>

The figure of Ludloe in this work thus further articulates problems of power and responsibility. As an early example of the technocratic utopian planner, Ludloe promises a return to paradise, and the possibility of a new start, as a glamorous alibi for the exploitation of others. Founding a secret organization dedicated to the establishment of a utopian community, his programme is itself shown to be based on sacrifice, exploitation and domination.

To establish his utopian community will require, in Ludloe's view, "some extraordinary method."<sup>33</sup> This is his justification for putting Carwin through a series of rigorous tests, sacrifices asserted as a necessary trial of his strength and dedication. As Carwin himself explains, "the station, my attainment of which



depended wholly on myself, was high above vulgar heads, and was to be gained by years of solicitude and labour."<sup>34</sup> In this sentence, Ludloe's own part as controller of this process has magically disappeared, as Carwin believes that his actions depend "wholly on myself."

Yet the actual basis of Ludloe's authoritarian control over Carwin is the threat of death, if the latter should betray the secrecy of the organization. Under the alibi of benevolent myths of social progress, Brown thus suggests forms of dominance and submission, violence and sacrifice. Ludloe is "only one among many, engaged in a great and arduous design," a single, ruling idea which demands competition, sacrifice and Oedipal perpetuations of power:

As each of us, continued he, is mortal, each of us must, in time yield his post to another. - Each of us is ambitious to provide himself a successor, to have his place filled by one selected and instructed by himself. All our personal feelings and affections are by no means intended to be swallowed up by a passion for the general interest; when they can be kept alive and be brought into play, in subordination and subservience to the great end, they are cherished as useful, and revered as laudable...<sup>35</sup>

With the bland, complacent, and duplicitous tone of the later technocrats of science fiction, Ludloe insists that personal feelings and affections will not be sacrificed to a higher collective ideal. Yet in the second half of the same sentence, he admits the necessity of subservience to the "great end." Nearly a century before the utopian fictions of Edward Bellamy and his followers, discussed in chapter 11, Brockden Brown investigates beneficent-sounding myths of progress, natural law, mechanistic inevitability and scientific empiricism in terms of totalitarianism and sacrificial power.

The issues of power, progress and the manipulations of Newtonian science, discussed by the writers approached in this chapter, were part of a fundamental struggle in the early years of the American Republic between mercantile-industrial and agrarian interests. The development of science and technology at this time was thus enacted within a debate as to whether the new nation should remain a fundamentally agricultural society, or whether it should be developed for widespread manufacturing, on the pattern of England. These conflicts have been mapped in detail by Henry Nash Smith, in *Virgin Land* (1950).<sup>36</sup>

In both the colonial period and the early years of the Republic, the utilitarian application of science, discussed in this chapter in terms of Palmer and Jefferson, was mostly concentrated in the area of agricultural production, with research carried out especially on projects for the improvement of crop yields, crop rotation, fertilizers, and harvesting methods, and for the control of disease and pests. Jefferson and Washington, amongst others, had encouraged the formation of agricultural societies, including the "Philadelphia Society for Promoting Agriculture," founded in 1785. Americans learned from Europe, in the words of Russel Blain Nye, that farming was to be considered "not as an art or as a vocation, but as a science, amenable to an experimental approach and related to the materials and methods of other sciences, particularly to botany, zoology, and chemistry."<sup>37</sup>

At first, therefore, Jefferson refused to support moves for the development of industrial manufacturing in America. Instead, he preferred to promote the expeditions of fur traders and explorers



beyond the Mississippi, such as Meriwether Lewis and William Clark's expedition of 1804, in which they travelled up the Missouri, over the Rocky Mountains, to the mouth of the Columbia river. The geographical knowledge gained by such expeditions was of utilitarian interest, as a preliminary to economic and political exploitation within an agricultural context. As such, it was encouraged by the federal government as part of its programme of land settlement. As well as Lewis and Clarke's expedition, Sibley's to the Red River (1803), and Pike's and Long's to the Rockies (1805, 1819, 1823) contributed useful information in botany, zoology, meteorology, ethnology, and agriculture.<sup>30</sup>

After the War of Independence, the refusal of industrial manufacturing by agrarian interests, such as those of Jefferson, continued, as a new sense of nationalistic destiny was seen in terms of the expansion of agriculture into the empty, fertile lands beyond the Westward-moving frontier. However, manufacturing interests, represented by such figures as Alexander Hamilton, began to prevail.

The blockades of the Revolutionary War had shown the dangers of America's dependence on foreign manufacturing industries. Accordingly, Jefferson changed his mind. In 1805, contemplating a new edition of his 1785 *Notes on Virginia*, he planned to qualify chapter 19, in which he had previously rejected the idea of manufacturing in America. In a letter to Mr. Lithson, written on January 4th 1805, Jefferson claimed that the existence of free land in the West would act as a "safety-valve," preventing the poverty and depravity that had followed industrial growth in European cities:



As yet our manufacturers are as much at their ease, as independent and moral as our agricultural inhabitants, and they will continue so as long as there are vacant lands for them to resort to; because whenever it shall be attempted by the other classes to reduce them to the minimum of subsistence, they will quit their trades and go to laboring the earth.<sup>39</sup>

Jefferson's belated response to manufacturing interests came at time when the rise of the merchant class was firmly established, as can be seen in the work of Tenche Coxe and Alexander Hamilton.

Coxe, a Philadelphia merchant, and assistant to Hamilton at the Treasury, spoke for his rising class, in his promotion of industrial manufacture and the "useful arts" in the agrarian economy of the United States, in the early years of the Republic. Coxe gives the importation of industrial technology from Europe a metaphysical sanction, removing the curse of Blake's "dark, Satanic mills," by naturalising technology to the American landscape. He announced that, "unless business of this kind is carried on, certain great natural powers of the country will remain inactive and useless. Our numerous mill seats... would be given by Providence in vain."<sup>40</sup> The beneficence of manufacturing industry is thus given a divine guarantee, and located as part of God's plan for American utility and success.

Alexander Hamilton's "Report on Manufactures", delivered before Congress on December 5, 1791, presented the case for the development of manufacturing industry in the United States, as a means of guaranteeing its independence from other nations. Hamilton emphasised the desirability of maximum productivity, so that the operations of the "Cotton Mill" might "continue with convenience, during the night, as well as through the day." As a result of

mechanization, America would be transformed into an industrial society that valued maximum utility and labour productivity. One of the benefits that Hamilton saw in manufacturing industry was therefore:

the employment of persons who would otherwise be idle (and in many cases a burthen on the community), either from the byass of temper, habit, infirmity of body, or some other cause, indisposing, or disqualifying them for the toils of the Country. It is worthy of particular remark, that, in general, women and Children are rendered more useful and the latter more early useful by manufacturing establishments, than they would otherwise be.<sup>41</sup>

Children will be socialised early into the regime of industrial production, their lives considered not in a context of pleasure and imagination, but of utility. The quality of the lives of those human beings whose labour would be made increasingly routine and repetitive, and who would be treated as objects of utilitarian manipulation, is a question evaded by Hamilton's optimistic belief in both the promise and the inevitability of industrial technology.

With the hegemony of Hamilton and Coxe's industrial, merchant classes, scientific activity in America thus came to be concerned with a continuation of European methods involving the mechanistic control of human energies. The following chapters, 4-7, will examine various responses to such developments in nineteenth century American fiction.

#### CHAPTER 4.

##### Edgar Allan Poe.

As a Southerner, Poe criticised Yankee complacencies as to the utilitarian benefits of technological and democratic progress. His work speculates on abuses of power and control in an era of industrialisation. Technology tends to appear in his fiction as a mystical, demonic force in hubristic challenge to the Christian order of a basically agrarian conception of "nature." However, the duplicity of Poe's writing belies a simple ideological formulation or point-of-view towards science and technology.

The Inquisition in "The Pit and the Pendulum" (1843-5) is a totalitarian power which has developed a highly sophisticated network of technologies of torture and invisible surveillance:

I had scarcely stepped from my wooden bed of horror upon the stone floor of the prison, when the motion of the hellish machine ceased and I beheld it drawn up, by some invisible force, through the ceiling. This was a lesson which I took desperately to heart. My every motion was undoubtedly watched.'

The narrator, a prisoner of the Inquisition, is the victim of a machine that is both flexible and adaptable, so that enclosure no longer implies rigidity or fixity. After he escapes from the pendulum, the walls of his cell begin to move, forcing him towards the central pit: "There had been a second change in the cell - and now the change was obviously in the form."<sup>2</sup> This capability of power to take on multiple transformations makes resistance difficult: "I shrank back - but the closing walls pressed me resistlessly onward."<sup>3</sup> In the end, the prisoner escapes not through his own



efforts, but by the intervention of a *deus ex machina*, as General Lasalle's French army enter Toledo.

Poe's story investigates the psychology of obedience. As the pendulum descends, the prisoner admits to feeling the "peculiar thrilling sensation which the friction of cloth produces on the nerves," and he takes a "frenzied pleasure in contrasting its downward with its lateral velocity."<sup>4</sup> The possibility of finding bodily pleasure and benefit in one's submission to technique is also suggested by the narrator of "Mellonta Tauta" (1849):

here I am, cooped up in a dirty balloon, with some one or two hundred of the *canaille*, all bound on a *pleasure excursion*, (what a funny idea some people have of *pleasure*!) and I have no prospect of touching *terra firma* for a month at least.<sup>5</sup>

The "funny idea some people have of pleasure" is a source of fascination for Poe's investigations of body-mind interactions, which move far beyond the Enlightenment simplifications of Elihu Palmer's "intellectual powers."

In Poe's fiction, contemporary technology is often associated with demonic agents of destruction, a form of black magic transgressing Christian taboos on knowledge. For example, "The Thousand-and-Second Tale of Scheherazade" (1845) presents nineteenth century America as a scene of magic and supernatural miracle. The story anthropomorphises many instances of contemporary technology, including Maelzel's chess-playing automaton, Babbage's Analytical Engine, the printing-press, dauguerrotypes, and the telegraph. The steam ship, which moves "altogether by necromancy," is described by the porter as "a cruel demon, with bowels of sulphur and blood of fire, created by evil genii as the means of inflicting misery upon

mankind." It contains not human beings but "men-vermin," or the "man-animal."<sup>6</sup> The railroad train is similarly "a huge horse whose bones were iron and whose blood was boiling water."<sup>7</sup>

This association of technology with black magic, as a blasphemous assault on the virtues of Christian humility, is also evident in "The Man That Was Used Up" (1839). The Brigadier General is a spokesman of nineteenth century American nationalist, industrialist orthodoxy:

'There is nothing at all like it,' he would say; 'we are a wonderful people, and live in a wonderful age! Parachutes and rail-roads - man-traps and spring-guns! Our steam-boats are upon every sea, and the Nassau balloon packet is about to run regular trips (fare either way only twenty pounds sterling) between London and Timbuctoo. And who shall calculate the immense influence upon social life - upon arts - upon commerce - upon literature - which will be the immediate result of the great principles of electro-magnetics! Nor is this all, let me assure you! There is really no end to the march of invention. The most wonderful - the most ingenious - and let me add, I say, the most *useful* - the most truly *useful* mechanical contrivances, are daily springing up like mushrooms, if I may so express myself, or, more figuratively, like - ah - grasshoppers - like grasshoppers, Mr Thompson - about us and ah, - ah - ah - around us!'<sup>8</sup>

Yet such manic enthusiasm is unfounded, for the champion of progress, mechanisation and utility has himself been turned into an automaton. The real effects of technological transformations are therefore the "rectangular precision"<sup>9</sup> that attends every movement of the automaton General.

Moreover, the General's technological prostheses may be an hubristic challenge to religious strictures. There is a sense here of a Christian limitation on the extent of human aspiration, as the "very capital discourse" of the Reverend Doctor Drummummupp quotes biblical authority: "'man that is born of woman hath but a short



time to live; he cometh up and is cut down like a flower!'"<sup>10</sup>

However, the ludicrous name given by Poe to the preacher suggests the presence of an irony and playfulness that belies singular point-of-view.

The criticism of industrial hubris, suggested by this story, is evident elsewhere in Poe's fiction. Moreover, the arrogance of the General's assumptions as to the superiority of contemporary American technology may be placed with Poe's awareness of the relativity of cultural achievement, shown in "Some Words With A Mummy" (1845). The mummy revived by galvanism belies the myth of technological progress assumed by his nineteenth century American interrogators, as Yankee notions of cultural and technological superiority are questioned.

In this story, Mr. Silk Buckingham readily assumes the "marked inferiority of the old Egyptians in all particulars of science, when compared with the moderns, and more especially with the Yankees..."<sup>11</sup> In reply, the mummy points out the technological achievements of ancient Egypt as superior to those of contemporary America. Accordingly, he sees America's rail-roads as "rather slight, rather ill-conceived, and clumsily put together" in comparison with the "vast, direct, iron-grooved causeways, upon which the Egyptians conveyed entire temples and solid obelisks of a hundred and fifty feet in altitude."<sup>12</sup> Similarly, Anglo-American claims to have developed the steam engine are countered by an alternative history from "Hero, through Solomon de Caus." The mummy finally admits that the ancient Egyptians were unable to match the invention of Ponnonner's lozenges, and Brandeth's pills.<sup>13</sup>



In Poe's writing, then, parody and irony are important strategies to subvert orthodox points-of-view. The hoax was another important strategy for Poe's trickster disruptions of Yankee utilitarian certainties, as he satirised the gullibility of Americans for control, in a society increasingly dominated by the rapid, destabilising information provided by the new mass technologies of newspaper and telegraph. "Von Kempelen and His Discovery" (1849) thus ridiculed the California gold-rush, by claiming that a scientist had succeeded in transforming base metal into gold. As a result of Von Kempelen's experiments, "gold now is, or at least soon will be (for it cannot be supposed that Von Kempelen can long retain his secret) of no greater value than lead, and of far inferior value to silver."<sup>14</sup> Poe uses the plausible tone of his mock scientific report to question assumptions as to what might constitute real "value" in mid-century America. Some of Poe's texts, such as "Eureka" (1848) and "The Colloquy of Monos and Una" (1841), suggest, if duplicitously, that such value may be found in spiritual immutabilities, rather than in the rapid destabilisations of American industrial development.

Technological transformation may therefore be seen as a symptom of cultural and spiritual disease in Poe. In this respect, "Mellonta Tauta" (1849) investigates Yankee myths of progress as a function of the speed of technological and cultural change. Acceleration breeds only dissatisfactions, and the subsequent need for endless growth and novelty:

Heigho! when will any *Invention* visit the human pericranium? Are we forever to be doomed to the thousand inconveniences of the balloon? Will *nobody* contrive a more expeditious mode of progress? This jog-trot movement, to my thinking, is little less than positive torture. Upon my word we have not

made more than a hundred miles the hour since leaving home!'<sup>6</sup>

Technological inventions are becoming rapidly obsolescent, and merely produce "ennui."<sup>6</sup> For Pundita, "Accustomed as I am to this mode of traveling," "a hundred or even two hundred miles an hour is slow traveling, after all."<sup>7</sup> In Poe's fiction, the human body adapts to the perceptual destabilisations of technological change, while demanding endless growth and Faustian progress.

In "MS Found in a Bottle" (1833), the strange crew of seamen similarly preside over an obsolescent science and technology: the "cabin floor was thickly strewn with strange, iron-clasped folios, and moldering instruments of science, and obsolete long-forgotten charts."<sup>8</sup> In this story, speed destabilises the familiar, habitual methods of thought exteriorized in technological instrumentation. The complacencies of Jeffersonian rationalism are thereby disrupted.

The narrator begins the tale by explaining his "habits of rigid thought." He is a dedicated rationalist:

I have often been reproached with the aridity of my genius; a deficiency of imagination has been imputed to me as a crime; and the Pyrrhonism of my opinions has at all times rendered me notorious. Indeed, a strong relish for physical philosophy has, I fear, tinctured my mind with a very common error of this age - I mean the habit of referring occurrences, even the least susceptible of such reference, to the principles of that science. Upon the whole, no person could be less liable than myself to be led away from the severe precincts of truth by the *ignes fatui* of superstition.<sup>9</sup>

But the narrator enters a world where the securities and consolations of his scientific rationalism break down.

The tale emphasises speed as a function of disruption and dis-ease. The accelerating rate of sensory data cannot be comprehended by quantitative measurement: "We scudded with frightful velocity



before the sea....," "the hulk flew at a rate defying computation,"

"We had no means of calculating time..."<sup>20</sup>

The sailors on the strange ship similarly defy rational explanation and categorisation: "I was unwilling to trust myself with a race of people who had offered, to the cursory glance I had taken, so many points of vague novelty, doubt, and apprehension."<sup>21</sup> Poe's fiction thus enters areas of unfamiliarity and doubt, in a movement contrary to that of many twentieth century science fiction narratives, which tend to move from an initial situation of defamiliarisation towards the consolations of explanation and the familiar.

Nevertheless, in Poe's fiction, novelty and doubt tend to be perceived in a context of threat. In "MS Found in a Bottle," the layout of the text itself begins to fragment, as the totalising securities of overall form have to be abandoned:

A feeling, for which I have no name, has taken possession of my soul - a sensation which will admit of no analysis, to which the lessons of by-gone times are inadequate, and for which I fear futurity itself will offer me no key. To a mind constituted like my own, the latter consideration is an evil. I shall never - I know that I shall never - be satisfied with regard to the nature of my conceptions. Yet it is not wonderful that these conceptions are indefinite, since they have their origin in sources so utterly novel. A new sense - a new entity is added to my soul.<sup>22</sup>

The new sensory data are overwhelming, and cannot be fitted into an *a priori* system. Yet the need for a key, for analysis and definition, outlives the possibility of their practical attainment. Even as he faces imminent death, the narrator is still fascinated by the possibility of finding secret knowledge and truth. Indeed, such rationalist obsessions are presented in terms of physical excitement and erotic penetration:



To conceive the horror of my sensations is, I presume, utterly impossible; yet a curiosity to penetrate the mysteries of these awful regions, predominates even over my despair, and will reconcile me to the most hideous aspects of death. It is evident that we are hurrying onwards to some exciting knowledge - some never-to-be-imparted secret, whose attainment is destruction.<sup>23</sup>

This fascination and terror with forbidden knowledge underlies Poe's notion of technology as a transgression of religious taboo.

Another crucial exploration of these ideas is "The Colloquy of Monos and Una" (1841), in which technological control of the environment is considered as a Fall from an original state of innocence.

From a speculative future, Monos recalls those non-conformists who had dared to question nineteenth century assumptions of "improvement" and "progress":

You will remember that one or two of the wise among our forefathers - wise in fact, although not in the world's esteem - had ventured to doubt the propriety of the term 'improvement', as applied to the progress of our civilization. There were periods in each of the five or six centuries immediately preceding our dissolution, when arose some vigorous intellect, boldly contending for those principles whose truth appears now, to our disenfranchised reason, so utterly obvious - principles which should have taught our race to submit to the guidance of the natural laws, rather than attempt their control. At long intervals some master-minds appeared, looking upon each advance in practical science as a retro-gradation in the true utility.<sup>24</sup>

In this passage, Poe shifts the meaning of the commonplace term "utility" away from material transformations through technology, towards a contemplative ideal of spiritual acquiescence, and a supposed rejection of human action and control. Writing in the

slavery-based economy of the South, Poe challenges Northern reliances on the mechanisation of labour as an hubristic challenge to Christian humility and to the necessity of submission to the will of God. The "poetic intellect" discovers "in the mystic parable that tells of the tree of knowledge, and of its forbidden fruit, death-producing, a distinct intimation that knowledge was not meet for man in the infant condition of his soul."<sup>25</sup>

Poe equates the rise of bourgeois industrial democracy with that of scientific rationalism as disruptions of "natural" Christian hierarchies. Rationalist desires for "system," "generality," and "abstraction" produce "disease":

Man, because he could not but acknowledge the majesty of Nature, fell into childish exultation at his acquired and still-increasing domination over her elements. Even while he stalked a God in his own fancy, an infantine imbecility came over him. As might be supposed from the origin of his disorder, he grew infected with system, and with abstraction. He enwrapped himself in generalities. Among other odd ideas, that of universal equality gained ground; and in the face of analogy and of God - in despite of the loud warning voice of the laws of gradation so visibly pervading all things in Earth and Heaven - wild attempts at an omni-prevalent Democracy were made. Yet this evil sprang necessarily from the leading evil, Knowledge. Man could not both know and succumb. Meantime huge smoking cities arose, innumerable. Green leaves shrank before the hot breath of furnaces. The fair face of Nature was deformed as with the ravages of some loathsome disease.<sup>26</sup>

Here Poe is antagonistic to technology as a generalised evil, and nostalgic for a contemplative spirituality in opposition to the "harsh mathematical reason of the schools."<sup>27</sup> In "The Colloquy of Monos and Una," Christian eschatologies are still available for the writer as a source of renewal:

Now it was that, in twilight, we discoursed of the days to come, when the Art-scarred surface of the Earth, having undergone that purification which alone could efface its rectangular obscenities, should clothe itself anew in the verdure and the mountain-slopes and the smiling waters of



Paradise, and be rendered at length a fit dwelling-place for man: - for man the Death-purged - for man to whose now exalted intellect there should be poison in knowledge no more - for the redeemed, regenerated, blissful, and now immortal, but still for the material, man.<sup>28</sup>

This myth of a redeemed universe, beyond technological "Art," forms one of the bases of "Eureka," and also recurs in Poe's fascination with mesmerism. In the mesmerist stories, however, the desire for spiritual deliverance is played off against an investigation of power, consent and control. In this way, positive and negative evaluations of mesmerism interact in a state of ambiguity, as Poe's duplicitous fictional techniques disrupt the certainties of singular point-of-view. His work thus cannot be reduced to a simple theory or attitude towards science and technology.

"A Tale of the Ragged Mountains" (1845) suggests the authoritarian relationship by which the mesmerist-scientist dominates his victim-patient. In Saratoga, Bedloe receives mesmerist therapy from Doctor Templeton, "from whose attention, while there, he either received, or fancied that he received, great benefit."<sup>29</sup> The ambiguity of the latter remark, suggesting a possible gap between fancy and actuality, implies that the subject's own perception of his interests may not necessarily correspond to his real interests. For human beings involved in power relationships, decisions as to when to obey authority, and when to rebel, are thus shown to be problematic.

Doctor Templeton uses mesmerist techniques to alleviate Bedloe's pain. This success "had very naturally inspired the latter with a certain degree of confidence in the opinions from which the remedies had been educed."<sup>30</sup> Here Bedloe generalises from an initial, local



benefit (the alleviation of his pain) to give his consent to the intellectual system within which the doctor places his actions. As a result, Templeton is able to "induce the sufferer to submit to numerous experiments." As in Brockden Brown, the experimentalist in Poe is viewed suspiciously, as a potentially destructive manipulator of other human beings.

Having provided the initial benefits of physical well-being, the doctor is then able to gain total control over Bedloe. He establishes a mesmeric rapport with him, after which "the will of the patient succumbed rapidly to that of the physician, so that, when I first became acquainted with the two, sleep was brought about almost instantaneously, by the mere volition of the operator, even when the invalid was unaware of his presence."<sup>31</sup> Such control techniques, invisible, and acting at a distance, are not easily resisted.

Yet Poe's story is duplicitous, disallowing a single evaluative point-of-view. The narrator presents his facts without an absolute explanatory system, so that Bedloe's vision of the Indian city is given more than one possible cause. For example, it may be a dysfunction of his own mental health, a self-induced hallucination, as it were, in that his temperament is described as "sensitive, excitable, enthusiastic," and his imagination "singularly vigorous and creative," deriving "additional force" from his morphine habit.<sup>32</sup>

Another possibility is that Bedloe has been manipulated by Templeton's hypnotic power, through mesmerism or telepathy. Templeton's anticipation of Bedloe's narrative at certain points

suggests the validity of this particular explanation. A third possibility is the doctor's own explanation, that a mystical phenomenon related to the reincarnation of souls has taken place.

By retaining this ambiguity, Poe's narrative presents the doctor's actions as neither beneficent nor malign. The writing thus presents no single, authorial point-of-view, "for" or "against" mesmerism. By means of this duplicitous, playful approach that refuses simplistic moral judgements, Poe extends his interest in mesmeric control beyond criticism of its authoritarian power bases, to an investigation of its potentialities as a source of metaphysical revelation about life and death. While describing mesmerism negatively in "Eureka," as one of the "very uncertain ~~isms~~"<sup>33</sup> that fail to account for cosmological developments, Poe elsewhere refuses to condemn mesmerism unequivocally as merely authoritarian manipulation.

"Mesmeric Revelation" (1844) presents a definition of mesmerism that further suggests this ambiguous, speculative approach:

that man, by mere exercise of will, can so impress his fellow, as to cast him into an abnormal condition, of which the phenomena resemble very closely those of death, or at least resemble them more than they do the phenomena of any other normal condition within our cognizance; that, while in this state, the person so impressed employs only with effort, and then feebly, the external organs of sense, yet perceives, with keenly refined perception, and through channels supposed unknown, matters beyond the scope of the physical organs; that, moreover, his intellectual faculties are wonderfully exalted and invigorated; that his sympathies with the person so impressing him are profound; and, finally, that his susceptibility to the impression increases with its frequency, while, in the same proportion, the peculiar phenomena elicited are more extended and more pronounced.<sup>34</sup>

Poe's story speculates on this religious dream of communion and immortality that lies at the centre of mesmerist and spiritualist

practices. Mesmerism, as a control without technology, is thus not evaluated in the same context of demonic transgression that Poe brings to contemporary technological artifacts in the stories considered earlier in this chapter.

The mesmerist-narrator of "Mesmeric Revelation" claims to "detail without comment"<sup>36</sup> the substance of the colloquy between the "sleep-walker" Mr. Vankirk, and himself. Vankirk willingly gives his consent to control. Indeed, he invites the mesmerist to hypnotise him, when he is on the verge of death, wishing thereby to be "intellectually convinced of his own immortality."<sup>36</sup> The possibility that mesmerism may enhance security by providing proof of spiritual realities, is therefore the motive for Vankirk's submission to mesmeric control. Accordingly, the mesmeric state is described as direct vision, beyond linguistic or sensory mediation:

When I say that it resembles death, I mean that it resembles the ultimate life; for when I am entranced the senses of my rudimental life are in abeyance, and I perceive external things directly, without organs, through a medium which I shall employ in the ultimate, unorganized life.<sup>37</sup>

However, Vankirk's apotheosis, "with a bright smile irradiating his features",<sup>38</sup> contrasts sharply with the painful, desperate death of the mesmerised subject in "The Facts in the Case of M. Valdemar" (1845). His life is suspended on the point of death by the action of a mesmerist, to whom the terminally-ill patient has again consented. The mesmerist-narrator reports that M. Valdemar seemed "vividly excited" by the opportunity to take part in his experiments, and that, when he is dying, he replies, "feebly, but



quite audibly, 'Yes, I wish to be mesmerized'...<sup>39</sup> Yet the horror of the story's ending, with its "nearly liquid mass of loathsome - of detestable putridity,"<sup>40</sup> serves as a warning against the optimistic, joyful implications of the ending of "Mesmeric Revelation."

Poe's "Eureka" further explores this dream of unmediated totality. A late attempt at building a total Newtonian system, this "Essay on the Material and Spiritual Universe" posits a system of full Laplacian determinism. "Accident" has no place in such a scheme, being a term "properly applied only to the result of . indistinguishable or not immediately traceable law."<sup>41</sup> The universe is thus a totally determined system, based on a single, generalised Law:

He who, divesting himself of prejudice, shall have the rare courage to think absolutely for himself, cannot fail to arrive, in the end, at the condensation of laws into Law - cannot fail of reaching the conclusion that *each law of Nature is dependent at all points upon all other laws*, and that all are but consequences of one primary exercise of the Divine Volition.<sup>42</sup>

Any contingency is "a result and a manifestation of his laws."

This Laplacian cosmology, resembling that of "Mesmeric Revelation," posits an original unity to which the universe is returning, in a movement of teleological inevitability, from a state of multiplicity deemed abnormal. The Universe is constituted by "forcing the originally and therefore normally *One* into the abnormal condition of *Many*."<sup>43</sup>

Poe's fascination with reversibility, unity, origin and ending is part of a total system based on electricity as a mystical power. The key force is Newtonian gravity, given a capital letter and

translated into electrical terms as "Attraction" and "Repulsion" in a "spiritual Ether."<sup>44</sup> Poe eroticises this electrical energy as a system of accelerating, mutual attraction in a reassuringly hopeful universe:

While undergoing consolidation, the clusters themselves, with a speed prodigiously accumulative, have been rushing towards their own general centre - and now, with a million-fold electric velocity, commensurate only with their material grandeur and with their spiritual passion for oneness, the majestic remnants of the tribe of Stars flash, at length, into a common embrace. The inevitable catastrophe is at hand... Guiding our imaginations by that omniprevalent law of laws, the law of periodicity, are we not, indeed, more than justified in entertaining a belief - let us say, rather, indulging a hope - that the processes we have here ventured to contemplate will be renewed forever, and forever, and forever; a novel Universe swelling into existence, and then subsiding into nothingness, at every throb of the Heart Divine?<sup>45</sup>

The "source" of each atom "lies in the principle, *Unity*," which is its "lost parent."<sup>46</sup>

Poe's "Eureka" is thus a total mystical order, based on unity, completeness and law. However, the work remains duplicitously outside the orthodoxies of contemporary Newtonian-Laplacian science, in that elsewhere in the essay Poe satirises and exposes the mythical bases of scientific procedures based on induction and deduction, while claiming for his own cosmological work the status of "A Prose Poem," its truth based on intuition rather than on science. Myths of Newtonian scientific methodology, bases of the Enlightenment status quo, are in this way criticised and replaced by imagination and *poesis* as sources of truth.

"Eureka" questions commonplace assumptions that scientific activities can be accounted for by a unitary scientific method, by criticising the assertion, prevalent in official versions of



science, that there exist *"but two practicable roads to Truth,"* namely, the deductive mode of investigation, satirised as the line from *"Aries Tottle"* to Euclid to Kant, and the inductive, *"Hoggish"* road of Francis Bacon.<sup>49</sup>

Over a century before the revolutionary work of Kuhn and Feyerabend, Poe observes that practising scientists themselves necessarily ignore such rules. Kepler, for example, in formulating his three laws of planetary motion, *"guessed - that is to say, he imagined them."*<sup>49</sup> Alibis of logic and rationality in orthodox scientific accounts are therefore countered by an acknowledgement of the vital roles played in scientific discovery by imagination and intuition, the latter considered as *"the conviction arising from those inductions or deductions of which the processes are so shadowy as to escape our consciousness, elude our reason, or defy our capacity of expression."*<sup>50</sup>

Poe's criticism of scientific methodology attacks both induction and deduction. Deductive, axiomatic truth is made historically relative:

Now, it is clear, not only that what is obvious to one mind may not be obvious to another, but that what is obvious to one mind at one epoch, may be anything but obvious, at another epoch, to the same mind. It is clear, moreover, that what, today, is obvious even to the majority of mankind, or to the majority of the best intellects of mankind, may tomorrow be, to either majority, more or less obvious, or in no respect obvious at all. It is seen, then, that the *axiomatic principle* itself is susceptible of variation, and of course that axioms are susceptible of similar change. Being mutable, the 'truths' which grow out of them are necessarily mutable too; or, in other words, are never to be positively depended on as truths at all - since Truth and Immutability are one.<sup>51</sup>

Put briefly: *"as for 'self-evidence', there is no such thing."*<sup>52</sup>



Induction is also criticised for providing discrete facts without a larger explanatory system:

The vital taint, however, in Baconianism - its most lamentable fount of error - lay in its tendency to throw power and consideration into the hands of merely perceptive men - of those inter-Tritonic minnows, the microscopical savans - the diggers and pedlers of minute facts, for the most part in physical science - facts all of which they retailed at the same price on the highway; their value depending, it was supposed, simply upon the fact of their fact, without reference to their applicability or inapplicability in the development of those ultimate and only legitimate facts, called Law.<sup>53</sup>

Poe's questioning of scientific methodologies is thus part of his desire for an absolute, immutable system of universal truth, of a higher value than that asserted by orthodox science. Accordingly, "Eureka" begins with an affirmation of the need for a single, totalising, inclusive perspective, that will subsume empirical fact into a fixed, centralised point-of-view:

We need so rapid a revolution of all things about the central point of sight that, while the minutiae vanish altogether, even the more conspicuous objects become blended into one. Among the vanishing minutiae, in a survey of this kind, would be all exclusively terrestrial matters. The Earth would be considered in its planetary relations alone. A man, in this view, becomes Mankind; Mankind a member of the cosmical family of Intelligences.<sup>54</sup>

Poe shows both science and art to be aspects of *poesis* by ambiguously locating his holistic cosmology as both a poetic system whose beauty is its own guarantee, and as a logical system that requires a guarantee for its truth from scientific procedures.

Poe therefore takes steps to defend his theory against scientific attack. Answering an objection to his cosmology from Newtonian dynamics - in which a second force is required to arrest uniform motion in a straight line - Poe insists that such principles cannot be assumed "at an epoch when no 'principles', in anything,

exist."<sup>54</sup> However, Poe's own principles are apparently exempt from such assumptions, as he asserts the truth of his system in an authoritarian manner, using key absolutist phrases, such as "only," "logical," "the slightest," "necessities," "train" and "indisputability":

I maintain, first, that *only* in the mode described is it conceivable that Matter could have been diffused so as to fulfil at once the conditions of radiation and of generally equable distribution. I maintain, secondly, that these conditions themselves have been imposed upon me, as necessities, in a train of ratiocination as rigorously logical as that which establishes any demonstration in Euclid; and I maintain, thirdly, that even if the charge of 'hypothesis' were as fully sustained as it is, in fact, unsustained and untenable, still the validity and indisputability of my result would not, even in the slightest particular, be disturbed.<sup>55</sup>

Poe's remark that his system is as "rigorously logical" as an axiom in Euclid is duplicitous, since he has earlier suggested the historical relativity and uncertainty of all such assertions of axiomatic truth. Poe's placing of "Eureka" within scientific procedures is therefore ambiguous, and edges into irony.

Moreover, in the Preface, Poe places "Eureka" beyond scientific truth-value and intellection:

To the few who love me and whom I love - to those who feel rather than to those who think - to the dreamers and those who put faith in dreams as in the only realities - I offer this Book of Truths, not in its character of Truth-Teller, but for the Beauty that abounds in its Truth; constituting it true. To these I present the composition as an Art-Product alone: - let us say as a Romance or, if I be not urging too lofty a claim, as a Poem.

In this way, Poe challenges rationalist versions of truth that suppress the vital role played in science by faculties such as intuition, imagination, dream, and an appreciation of beauty. As

such, his Romantic criticism of science and technology is a complex and ambiguous one.

Poe's examination of science and technology may be compared with the work of Hawthorne and Melville, which continues to explore Christian anxieties, nostalgias and myths in a rapidly industrialising America.



CHAPTER 5.

Nathaniel Hawthorne.

Hawthorne's fiction respects complexity and ambiguity in its handling of issues concerning the exceptional figure in a utilitarian, democratic culture. In contrast to Poe, however, Hawthorne does not play with the possibilities of mesmerism as a means of religious salvation or of beneficent control. Instead, he unequivocally condemns such practices as an evil instance of power and manipulation.

Westervelt, the mesmerist in *The Blithedale Romance* (1852), has Priscilla under hypnotic control, forcing her to perform as the mysterious "Veiled Lady." He is also a spokesman for the mesmerist-spiritualist dream of spiritual communion and revelation, identical to that speculated on in a duplicitous manner by Poe:

He spoke of a new era that was dawning upon the world; an era that would link soul to soul, and the present life to what we call futurity, with a closeness that should finally convert both worlds into one great, mutually conscious brotherhood.'

Yet Hawthorne makes clear the totalitarian aspects of such dreams of power, as Coverdale learns about mesmerism in terms of "the miraculous power of one human being over the will and passions of another." For the hypnotist, "human character was but soft wax in his hands; and guilt, or virtue, only the forms into which he should see fit to mould it." Coverdale registers horror and disgust that, if the stories of mesmeric power were true, the

individual soul was virtually annihilated, and all that is sweet and pure, in our present life, debased, and that the idea of man's eternal responsibility was made ridiculous,

and immortality rendered, at once, impossible, and not worth acceptance. But I would have perished on the spot, sooner than believe it.<sup>2</sup>

Coverdale thus reasserts the need for individual responsibility against forces of evil manipulation. Spiritualism in Hawthorne is therefore not a new hope for the salvation of humankind, but an unambiguous symptom of the latter's degeneracy:

If these phenomena have not humbug at the bottom, so much the worse for us. What can they indicate, in a spiritual way, except that the soul of man is descending to a lower point than it has ever before reached, while incarnate? We are pursuing a downward course, in the eternal march, and thus bring ourselves into the same range with beings whom death, in requital of their gross and evil lives, has degraded below humanity. To hold intercourse with spirits of this order, we must stoop, and grovel in some element more vile than earthly dust.<sup>3</sup>

Westervelt's mesmeric manipulation of Priscilla is part of a wider investigation of power and control in *The Blithedale Romance*. As such, his ability to use technical skill to control others against their will is complemented by the social reform projects of Hollingsworth, which are presented as equally pseudo-scientific and seductive.

Hawthorne's novel explores the damage that an inflexible, single system of belief can inflict on the lives of its unwitting victims, in a way similar to Brockden Brown in *Wieland*. Though he claims to act beneficently, in the interests of social reform, Hollingsworth is shown instead to be an egotistical manipulator, enclosed within a dogmatic, totalitarian system. Like Mary Shelley's Dr. Frankenstein, Hollingsworth has invented a monster, and becomes a monster himself:

His one true friend was the cold, spectral monster which he had himself conjured up, and on which he was wasting all the warmth of his heart, and of which, at last - as these men of a mighty purpose so invariably do - he had grown to be the bond-slave. It was his philanthropic theory!<sup>4</sup>



An over-insistence on the power of the "head," the "intellectual powers" eulogised by Elihu Palmer, leads to a repression of tactile, bodily experience, associated with the warmth and sympathy of the "heart." Whatever benevolent intentions Hollingsworth may have had, they have been stifled by his doxological insistence on the exclusive truth of his system, which takes on an eroticised power over him:

He had taught his benevolence to pour its warm tide exclusively through one channel; so that there was nothing to spare for other great manifestations of love to man, nor scarcely for the nutriment of individual attachments, unless they could minister, in some way, to the terrible egotism which he mistook for an angel of God. Had Hollingsworth's education been more enlarged, he might not so inevitably have stumbled into this pit-fall. But this identical pursuit had educated him. He knew absolutely nothing, except in a single direction, where he had thought so energetically, and felt to such a depth, that, no doubt, the entire reason and justice of the universe appeared to be concentrated thitherward.<sup>5</sup>

A narrow, specialist education has produced a perverted, neurotic and authoritarian tyrant, who endangers the lives of others. The need for an enlarged education, moving beyond the narrow egotisms of disciplinary specialisation, thus figures in Hawthorne decades before the explorations of cultural studies initiatives by Lewis Mumford, Buckminster Fuller, and the other American writers discussed in chapter 1.

Like Melville's Ahab, Hollingsworth's actions are described unequivocally as symptoms of madness. "It was my private opinion, says Coverdale, "that, at this period of his life, Hollingsworth was fast going mad..."<sup>6</sup> An American leader is here shown to be an insane manipulator, underneath his rhetoric of democratic freedom and progress.



As a social scientist, Hollingsworth channels all his desire into an "imaginary edifice," a prison for the "reform" of criminals. Coverdale notices Hollingsworth making a sketch of his planned building, "as lovingly as another man might plan those of the projected home, where he meant to be happy with his wife and children," as Hawthorne returns desire and erotic intensities to the neutral façade of the scientist-technocrat. The idea is literally Hollingsworth's brain-child, his unhealthy substitute for the mutuality of social relations. He is therefore described as "not altogether human":

This is always true of those men who have surrendered themselves to an over-ruling purpose. It does not so much impel them from without, nor even operate as a motive power within, but grows incorporate with all they think and feel, and finally converts them into little else save that one principle. When such begins to be the predicament, it is not cowardice, but wisdom, to avoid these victims. They have no heart, no sympathy, no reason, no conscience.<sup>7</sup>

Hollingsworth's totalitarian system is self-perpetuating, in that an answer can be found for any question within the terms of his system:

So plausible looked his theory, and, more than that, so practical; such an air of reasonableness had he, by patient thought, thrown over it; each segment of it was contrived to dove-tail into all the rest, with such a complicated applicability; and so ready was he with a response for every objection - that, really, so far as logic and argument went, he had the matter all his own way.<sup>8</sup>

The seductiveness of such total security systems is a major issue in Hawthorne's fiction. Coverdale "detested this kind of man, and all the more, because a part of my own nature showed itself responsive to him."<sup>9</sup>

Nevertheless, Coverdale is able to resist Hollingsworth's assumptions of technocratic power:

"Mankind, in Hollingsworth's opinion," thought I, "is but another yoke of oxen, as stubborn, stupid, and sluggish, as our old Brown and Bright... But, are we his oxen? And what right has he to be the driver?"<sup>10</sup>

Hollingsworth confronts Coverdale with a reductive, Christian-manichean choice - "Be with me... or be against me! There is no third choice for you..." However, unlike Poe's mesmerist patients, Coverdale answers - "No!" - to this invitation to submission.<sup>11</sup> Coverdale tries to disaffiliate himself from the desire for a singular "purpose" that motivates Hollingsworth's destructive actions towards others.

In thus rejecting Hollingsworth's simplistic, binary division of the world, Coverdale becomes a Hawthornian nay-sayer. In a letter to Hawthorne, on 16? April? 1851, Melville referred to this quality of dissent in Hawthorne:

He says NO! in thunder; but the Devil himself cannot make him say yes. For all men who say yes, lie; and men who say no - why, they are in the happy condition of judicious, unincumbered travellers in Europe; they cross the frontiers into Eternity with nothing but a carpet bag, - that is to say, the Ego. Whereas those yes-gentry, they travel with heaps of baggage, and, damn them! they will never get through the Custom House...<sup>12</sup>

The awareness of Melville and Hawthorne of the necessity of boundary-crossing, of moving out of singular fixities, opens up vital challenges to the inheritance by American power interests of totalitarian, deterministic systems from Europe. Flexibility and openness to a multiplicity of ideas are seen as necessary means of resistance to monomaniac obsessions with finding a singular truth. Accordingly, Coverdale realises the need to leave Blithedale and return temporarily to urban society, for, "No sagacious man will long retain his sagacity, if he live exclusively among reformers and



progressive people, without periodically returning into the settled system of things, to correct himself by a new observation from that old stand-point."<sup>13</sup>

Hawthorne exposes Hollingsworth's obsession with singular truth as a restriction on human imagination and freedom. As Coverdale tells Hollingsworth: "I wish you would see fit to comprehend... that the profoundest wisdom must be mingled with nine-tenths of nonsense; else it is not worth the breath that utters it."<sup>14</sup> This easing of Puritan insistences on truth adds liberal-Christian values associated with the "heart," such as generosity, feeling and tolerance, to the hard intellection of Newtonian rationalism and science.

Coverdale is a Romantic drifter-figure, resisting Hollingsworth's control through flexibility and lack of commitment to a singular. However, as a nay-sayer who refuses to participate as a joiner of social movements, his actions are nevertheless duplicitous, as he shows both positive dissent, and a denial of responsibility. While Coverdale's lack of "purpose" guards him from the anti-social damage inflicted by a Hollingsworth, it is also a source of emptiness for him:

As Hollingsworth once told me, I lack a purpose. How strange! He was ruined, morally, by an overplus of the very same ingredient, the want of which, I occasionally suspect, has rendered my own life all an emptiness. I by no means wish to die. Yet, were there any cause, in this whole chaos of human struggle, worth a sane man's dying for, and which my death would benefit, then - provided, however, the effort did not involve an unreasonable amount of trouble - methinks I might be bold to offer up my life. If Kossuth, for example, would pitch the battle-field of Hungarian rights within an easy ride of my abode, and choose a mild, sunny morning, after breakfast, for the conflict, Miles Coverdale would gladly be his man, for one brave rush upon the



levelled bayonets. Farther than that, I should be loth to pledge myself.<sup>16</sup>

Like Melville's Bartleby, Coverdale risks stasis in his decision to "prefer not to" get involved in activity destructive of human potentiality.<sup>17</sup> But whether Coverdale's refusal is a positive act, a nineteenth century anticipation of what Kenneth Rexroth, in connection with the Beat writers of the 1950s, calls "disaffiliation,"<sup>18</sup> or whether it is merely the complacency of a materially satisfied bourgeois, is an ambiguity which Hawthorne places before his reader. In admitting that "life has come to rather an idle pass with me,"<sup>19</sup> resistance and nay-saying are shown to have their negative side, as a morally lazy denial of responsibility.

At one point in the novel, Coverdale observes the actions of the other protagonists at Blithedale from the top of a "white-pine tree," thereby both avoiding the struggles enacted below him, and claiming exemption from responsibility.<sup>20</sup> But although he sees himself as a "calm observer,"<sup>21</sup> Coverdale's assumption of neutrality is questionable. For his silence as he watches Priscilla being manipulated by Westervelt and Hollingsworth amounts to complicity and a refusal of responsibility, especially as he reveals on the final page of the novel that he was in love with Priscilla throughout his stay at Blithedale. Coverdale allows her exploitation to continue even after he fully comprehends the damage being done to her by Hollingsworth and Westervelt. In this way, any possibility of resistance through nay-saying is itself scrutinised within the complex play of Hawthorne's fiction. The novel is not a didactic transmitter of ideas, but a field in which the reader evaluates ambiguities.

Hawthorne's fictional investigations of science and power involve issues of sexual difference, as he explores several instances of women as victims of male power. In his work, the behavioural expectations for women in nineteenth century America leave them particularly vulnerable to exploitation by powerful men. In *The Blithedale Romance*, Hollingsworth takes advantage of Priscilla's passivity to totally impose his will on her. Priscilla succumbs to "that kind of personal worship which her sex is generally prone to lavish upon saints and heroes."<sup>21</sup> The other occupants of Blithedale notice a "pleasant weakness in the girl," in that she was "not quite able to look after her own interests, or fight her battle with the world."<sup>22</sup> Priscilla's lack of autonomy makes her Hollingsworth's ideal woman, "the gentle parasite, the soft reflection of a more powerful existence."<sup>23</sup> It is not surprising, given these specific cultural circumstances, that Hollingsworth, "like many other illustrious prophets, reformers, and philanthropists, was likely to make at least two proselytes, among the women, to one among the men."<sup>24</sup> Passivity, especially in women, is fatally attractive to manipulation by powerful men.

Moreover, Priscilla's tendency to drift makes her especially susceptible to control. She is "only a leaf, floating on the dark current of events, without influencing them by her own choice or plan..."<sup>25</sup> "I am blown about like a leaf... I never have any free-will," she says.<sup>26</sup> Lacking self-determination, she easily becomes the "pale victim."<sup>27</sup>

Priscilla's inability to resist control is seen as a fatal consequence of the division of society into separate codes of



behaviour for men and women. Hawthorne exposes the Romantic duality of "head" and "heart," and its attendant myths of masculine and feminine behavioural habits, as a damaging and unhealthy restriction of human potential. Hollingsworth's power depends on this divide-and-rule policy, as he tells Zenobia that she has "a woman's view... whose whole sphere of action is in the heart, and who can conceive of no higher nor wider one!"<sup>28</sup>

Zenobia's training as a woman in this particular society has led her to channel all her energies into the perceived necessity of marriage, valued as the single centre of her experience. When she is disappointed in love, she commits suicide. The woman who takes on male society, and attempts to "transcends its rules,"<sup>29</sup> thus comes to a bad end. Hawthorne's novel may perhaps be seen as repeating sadistic treatments of the dissenting woman in male-dominated fiction, while at the same time opening up criticisms of the unequal treatment of women in a society dominated by powerful men. After Zenobia's death, Coverdale bitterly criticises the deadly imposition of singular models of behaviour onto women:

It is nonsense, and a miserable wrong - the result, like so many others, of masculine egotism - that the success or failure of woman's existence should be made to depend wholly on the affections, and on one species of affection; while man has such a multitude of other chances, that this seems but an incident.<sup>30</sup>

The need for multiplicity, rather than this reductiveness and simplification of human experience to singularities or manichean dualities, is thus a central preoccupation in Hawthorne, and recurs in his fictional probes into the damage caused by scientific rationalism and empiricism in mid-nineteenth century America.



"Rappaccini's Daughter" (1844) also explores the work of a lone scientist and his female victim. A doctor who cultivates a garden of medicinal plants, Rappaccini's interests in science move beyond the merely utilitarian, involving him in power and the manipulation of others. Like Hollingsworth, he is an example of an unhealthy separation of intellect and emotion, his face "singularly marked with intellect and cultivation, but which could never, even in his more youthful days, have expressed much warmth of heart."<sup>31</sup>

Criticism of Rappaccini's actions and motives is explicitly voiced in the story by Baglioni. As a professor of medicine, he is distrustful of Rappaccini's "professional character":

he cares infinitely more for science than for mankind. His patients are interesting to him only as subjects for some new experiment. He would sacrifice human life, his own among the rest, or whatever else was dearest to him, for the sake of adding so much as a grain of mustard seed to the great heap of his accumulated knowledge.<sup>32</sup>

Rappaccini is "as true a man of science as ever distilled his heart in an alembic," in that "with what he calls the interests of science before his eyes, (he) will hesitate at nothing."<sup>33</sup> Baglioni warns Giovanni that "you are the subject of one of Rappaccini's experiments."<sup>34</sup>

However, Hawthorne's story places this criticism of the abuse of science in the context of a character who is given his own vested interests in seeing Rappaccini fail. It is suggested that Baglioni's judgement, however apparently reasonable, may be motivated by professional rivalry. Accordingly, Hawthorne adds that Giovanni "might have taken Baglioni's opinions with many grains of allowance had he known that there was a professional warfare of long continuance between him and Dr. Rappaccini in which the latter was

generally thought to have gained the advantage."<sup>36</sup> Baglioni's motives mix admiration, hatred and pleasure in his plan to free Rappaccini's daughter from her father's influence:

"We will thwart Rappaccini yet," thought he, chuckling to himself, as he descended the stairs; "but, let us confess the truth of him, he is a wonderful man - a wonderful man indeed; a vile empiric, however, in his practice, and therefore not to be tolerated by those who respect the good old rules of the medical profession."<sup>37</sup>

Baglioni is a conservative, defending scholastic methods against the new empiricism of Rappaccinni.

In this way, professional rivalries are shown to lie at the centre of the production of scientific findings. Moreover, by placing criticism of the doctor within a situation of professional rivalry, Hawthorne makes the truths of his fiction provisional. As in Brockden Brown, perceptions are relativised, and opened to doubt. Thus, by showing truth and actuality to be complex and uncertain, human susceptibilities to control and manipulation are made more understandable. The prospect of judging situations clearly, and of avoiding the deceptiveness of power, is difficult in a world of shifting and uncertain appearances.

Looking down on the garden in the light of morning, Giovanni reassesses Rappaccini and his daughter, whom he had previously seen in the fading and deceptive light of sunset. He is no longer certain of the truth of his previous perceptions, as he "could not determine how much of the singularity which he attributed to both was due to their own qualities and how much to his wonder-working fancy; but he was inclined to take a most rational view of the whole matter."<sup>38</sup> As in Brown's *Wieland*, the problem of what constitutes rationality, and whether truth is determinate and determinable, is not mere



epistemology and philosophy, but is a matter of life or death, in a society based on manipulative power.

The relativisation of truth in Hawthorne's story is further suggested by the possibility that Giovanni was drunk when he first sees, or thinks he sees, the strange activities in the garden. He had returned to his lodgings after drinking wine, "which caused his brain to swim with strange fantasies in reference to Dr. Rappaccini and the beautiful Beatrice."<sup>38</sup> The "singular incident" of the lizard being killed by a drop of moisture from one of the flowers is made uncertain by Hawthorne's qualifications: "unless Giovanni's draughts of wine had bewildered his senses," "but, at the distance from which he gazed, he could scarcely have seen any thing so minute..."<sup>39</sup>

However, by the end of the story, the truth of the situation is revealed. In his uncertainty over Beatrice's motives and actions, Giovanni comes to believe that she has "instilled a fierce and subtle poison into his system,"<sup>40</sup> feeling that he has put himself "within the influence of an unintelligible power"<sup>41</sup> by communicating with her. However, the end of the story makes clear that the real source of evil influence is the invisible father, who has infected both children with his poison. Rappaccini, as his "bent form grew erect with conscious power,"<sup>42</sup> finally exults in the ability that his power gives for the manipulation of others. His power will provide Beatrice with the opportunity to be strong, and to avoid victimisation:

Does thou deem it misery to be endowed with marvellous gifts against which no power nor strength could avail an enemy - misery, to be able to quell the mightiest with a breath - misery to be as terrible as thou art beautiful? Wouldst thou, then, have preferred the condition of a weak woman, exposed to all evil and capable of none?<sup>43</sup>



Rappaccini thus uses his scientific power as a form of competitive strength, confirming him as the perverted Adam who presides over a fallen Eden:

Was this garden, then, the Eden of the present world? And this man, with such a perception of harm in what his own hands caused to grow, - was he the Adam?<sup>44</sup>

As in Poe's "The Colloquy of Monos and Una," the abuses of scientific and technological skill are thereby associated with a perversion of innocence, and with a violation of Christian taboos on knowledge. Accordingly, the flowers tended by Rappaccini are described as "unnatural":

Several also would have shocked a delicate instinct by an appearance of artificialness indicating that there had been such commixture, and, as it were, adultery of various vegetable species, that the production was no longer of God's making, but the monstrous offspring of man's depraved fancy, glowing with only an evil mockery of beauty. They were probably the result of experiment, which in one or two cases had succeeded in mingling plants individually lovely into a compound possessing the questionable and ominous character that distinguished the whole growth of the garden.<sup>45</sup>

Human powers of experimentation and design are considered to be hubristic assumptions of the divine prerogative on creativity, and the sciences of botany and plant breeding as Faustian tamperings with a fixed, preordained "nature." The results of such human pride in Hawthorne's story are death and sacrifice, as Beatrice dies, "the poor victim of man's ingenuity and of thwarted nature, and of the fatality that attends all such efforts of perverted wisdom."<sup>46</sup>

"The Birthmark" (1843) also investigates sacrifice in a context of liberal Christian anxieties. In his quest for a transcendental ideal of perfection and beauty, Aylmer transgresses Christian limits in an hubristic challenge to the powers of God the Creator. The

story is set at the end of the eighteenth century, at the height of the ambitions of Newtonian science, when the "higher intellect, the imagination, the spirit, and even the heart might all find their congenial aliment in pursuits which, as some of their ardent votaries believed, would ascend from one step of powerful intelligence to another, until the philosopher should lay his hand on the secret of creative force and perhaps make new worlds for himself."<sup>48</sup> Again, the heart is involved in scientific pursuit, as the story suggests the erotics of medical science.

Aylmer bases his power and reputation as a scientist on his confidence in the efficacy and rightness of science. He feels "confident in his science, and felt that he could draw a magic circle round her within which no evil might intrude."<sup>49</sup> He shows his wife a poison he has developed, so that, as he tells her, "No king on his guarded throne could keep his life if I, in my private station, should deem that the welfare of millions justified me in depriving him of it."<sup>50</sup> When Georgiana asks him why he keeps such a "terrific drug," he replies,

"Do not mistrust me, dearest," said her husband, smiling;  
"its virtuous potency is yet greater than its harmful one."<sup>51</sup>

The bland assurance that Aylmer shows in the moral virtues of his science is fatal, as his faith in scientific progress encourages him to press beyond the limits of his capability, with deadly consequences for Georgiana.

The basis of Aylmer's confidence is a mistaken belief that elevations in human capability through science will be attended by a similar elevation in humanity's awareness of its moral responsibilities. Believing that the "universal solvent" sought by



the alchemists may be found "by the plainest scientific logic," he adds that "a philosopher who should go deep enough to acquire the power would attain too lofty a wisdom to stoop to the exercise of it."<sup>51</sup> Aylmer thus dangerously confounds knowledge and wisdom, and wrongly assumes the identity of scientific and of moral progress. Indeed, the gap between these two types of progress forms the basis of Hawthorne's criticism of contemporary social developments, as it does for Emerson's essay "Works and Days" (1870), which will be discussed in chapter 7.

Aylmer is shown, despite his accumulated knowledge, to lack a higher wisdom that would reach beyond the restrictive duality of matter and spirit:

Yet, had Aylmer reached a profounder wisdom, he need not thus have flung away the happiness which would have woven his mortal life of the selfsame texture with the celestial. The momentary circumstance was too strong for him; he failed to look beyond the shadowy scope of time, and, living once for all in eternity, to find the perfect future in the present.<sup>52</sup>

As with Hollingsworth in *The Blithedale Romance*, Aylmer's pursuit of science demonstrates the "tyrannizing influence acquired by one idea over his mind."<sup>53</sup> Accordingly, his monomania becomes anti-social, displacing even his love for his wife:

He had devoted himself, however, too unreservedly to scientific studies ever to be weaned from them by any second passion. His love for his young wife might prove the stronger of the two; but it could only be by intertwining itself with his love of science and uniting the strength of the latter to his own.<sup>54</sup>

Thus Aylmer gets caught in an insane, quasi-religious quest for static, Platonist perfection. His wife's birthmark comes to represent for him "the visible mark of earthly imperfection," its "crimson hand" expressing



the ineludible gripe in which mortality clutches the highest and purest earthly mould, degrading them into kindred with the lowest, and even with the very brutes, like whom their visible frames return to dust. In this mannner, selecting it as the symbol of his wife's liability to sin, sorrow, decay, and death.<sup>55</sup>

So Aylmer dedicates himself to using his scientific powers in a spiritual quest beyond mortal imperfection. Disgust and shame at the animality of the human body, in a Christian context of sin and bodily repression, leads Aylmer inadvertently to sacrifice his wife, in an insane attempt to perfect the imperfectible. Aylmer fails to recognize "the truth" he had discovered earlier in his scientific career,

that our great creative Mother, while she amuses us with apparently working in the broadest sunshine, is yet severely careful to keep her own secrets, and, in spite of her pretended openness, shows us nothing but results. She permits us, indeed, to mar, but seldom to mend, and, like a jealous patentee, on no account to make.<sup>56</sup>

Christian limits are thus seen to censor human creativity and *poesis*, correcting the boundary-breaking drives of Faustian science towards the infinite.

The victim of Aylmer's transgression of Christian natural law is again a woman, who consents to the operation, as she says, "at whatever risk."<sup>57</sup> The story suggests that her consent is grounded both in her need to be accepted by her husband, and in the faith she places in his scientific ability, on the basis of previous demonstrations of its efficacy. Having lived with Aylmer's horror at her birthmark, she "soon learned to shudder at his gaze,"<sup>58</sup> and thereby comes to accept her husband's perception of her, and the power and authority of his gaze, so that, before the operation, "Not even Aylmer now hated it so much as she."<sup>59</sup>

Reading her husband's scientific notebooks, Georgiana admires the way he "handled physical details as if there were nothing beyond them; yet spiritualized them all and redeemed himself from materialism by his strong and eager aspiration towards the infinite." After reading of his heroic failures, she tells him, "It has made me worship you more than ever..."<sup>60</sup> Accordingly, she offers herself as a sacrificial victim to a male god, convinced of her own worthlessness and sin.

Consent is thus given through passivity and lack of self-will. Georgiana even takes her husband's dedication to an ideal of beauty as flattering, as an extraordinary display of "honorable love," "so pure and lofty that it would accept nothing less than perfection nor miserably make itself contented with an earthier nature than he had dreamed of":

She felt how much more precious was such a sentiment than that meaner kind which would have been guilty of treason to holy love by degrading its perfect idea to the level of the actual; and with her whole spirit she prayed that, for a single moment, she might satisfy his highest and deepest conception. Longer than one moment she well knew it could not be; for his spirit was ever on the march, ever ascending, and each instant required something that was beyond the scope of the instant before.<sup>61</sup>

As in Poe, the desire for unlimited growth of scientific and technological procedures brings about dis-ease, and destroys beauty. Yet even when she is dying, killed by Aylmer's bungled operation, Georgiana's attitude remains one of respect for his power, and for the rightness of his actions: "you have aimed loftily; you have done nobly. Do not repent that, with so high and pure a feeling, you have rejected the best the earth could offer."<sup>62</sup>



In this way, Aylmer becomes an ambivalent figure of heroic failure, as the comments on his journal suggest:

It was the sad confession and continual exemplification of the shortcomings of the composite man, the spirit burdened with clay and working in matter, and of the despair that assails the higher nature at finding itself so miserably thwarted by the earthly part. Perhaps every man of genius, in whatever sphere, might recognize the image of his own experience in Aylmer's journal.<sup>63</sup>

"The Birthmark" is thus ambivalent in its handling of the aspirations of an exceptional figure for an ideal, spiritual perfection. Such ambivalence is also evident in "The Artist of the Beautiful" (1844). Owen Warland's "irregular genius"<sup>64</sup> is an object of suspicion for his acquaintances. Peter Hovenden sums up a prevalent attitude to the exceptional figure since the nineteenth century: "What can Owen Warland be about?"<sup>65</sup>

Warland does not conform to the utilitarian orthodoxies of nineteenth century industrialism, exemplified in the work of the blacksmith Robert Danforth. The latter's hard, manual labour is valued by the community, who consider him a man who, as Peter Hovenden puts it, "spends his labor upon a reality."<sup>66</sup> Warland, in contrast, works "always for the purposes of grace, and never with any mockery of the useful," his work "refined from all utilitarian coarseness." As a result, he looks "with singular distaste at the stiff and regular processes of ordinary machinery." The steam engine appears as "something monstrous and unnatural to him."<sup>67</sup>

Warland's squeamish rejection of contemporary industrial technology provokes his quasi-aristocratic removal from the rest of society. He comes to live the anti-social life that Hawthorne sees as a constant danger for the creative non-conformist:



To persons whose pursuits are insulated from the common business of life - who are either in advance of mankind or apart from it - there often comes a sensation of moral cold that makes the spirit shiver as if it had reached the frozen solitudes around the pole. What the prophet, the poet, the reformer, the criminal, or any other man with human yearnings, but separated from the multitude by a peculiar lot, might feel, poor Owen Warland felt.<sup>68</sup>

He becomes absorbed in a "secret occupation,"<sup>69</sup> the "one idea to which all his intellectual activity referred itself."<sup>70</sup> In this story, Hawthorne's monomaniac pursues an ideal comparable to Aylmer's in "The Birthmark," namely, that of the "spiritualization of matter."<sup>71</sup>

The insanity of such an impossible quest is, however, treated ambiguously. Hawthorne's writing refuses either to condemn him unequivocally, or to confirm his madness, as the shifting, indecisive argument in the following quotation makes evident:

The townspeople had one comprehensive explanation of all these singularities. Owen Warland had gone mad! How universally efficacious - how satisfactory, too, and soothing to the injured sensibility of narrowness and dulness - is this easy method of accounting for whatever lies beyond the world's most ordinary scope! From St. Paul's days down to our poor little Artist of the Beautiful, the same talisman had been applied to the elucidation of all mysteries in the words or deeds of men who spoke or acted too wisely or too well. In Owen Warland's case the judgement of his townspeople may have been correct. Perhaps he was mad. The lack of sympathy - that contrast between himself and his neighbors which took away the restraint of example - was enough to make him so. Or possibly he had caught just so much of ethereal radiance as served to bewilder him, in an earthly sense, by its intermixture with the common daylight.<sup>72</sup>

Warland is made an ambivalent figure by the refusal of a singular authorial point-of-view: "It was his fortune, good or ill, to achieve the purpose of his life."<sup>73</sup>

Like Aylmer in "The Birthmark," Warland seeks to improve on "Nature," in response to a Platonic ideal mimesis:

Nature's ideal butterfly was here realized in all its perfection; not in the pattern of such faded insects as flit among earthly flowers, but of those which hover across the meads of paradise for child-angels and the spirits of departed infants to disport themselves with.<sup>74</sup>

Crucially, this desire to transcend actuality carries over damagingly into Warland's relationships with other human beings in society, especially in his reluctance or inability to pursue his love for Annie. Her subsequent marriage to the blacksmith produces a child, "a little personage who had come mysteriously out of the infinite, but with something so sturdy and real in his composition that he seemed moulded out of the densest substance which earth could supply."<sup>75</sup> Unlike Warland's automaton butterfly, the child is not a mere simulacrum of life, so that Annie admires "her own infant, and with good reason, far more than the artistic butterfly."<sup>76</sup> Here, Hawthorne's duplicitious handling is temporarily abandoned, and Warland is explicitly and unequivocally condemned for pursuing an impossible ideal. Actuality is reasserted over Platonist longing.

Annie's "good reason" for preferring actuality to Platonic ideal is reinforced by Danforth, who inadvertently reduces Warland's life's work to an absurdity. At first, Danforth is convinced that the automaton is a real butterfly. However, he dismisses this notion as improbable, assuming that any attempt to imitate a real butterfly would be futile:

Do you suppose any mortal has skill enough to make a butterfly, or would put himself to the trouble of making one, when any child may catch a score of them in a summer's afternoon?<sup>77</sup>

Danforth's demolition of Warland's attempts at mimesis moves beyond mere utilitarian, common sensical ignorance, towards a criticism of



Warland's obsession with his single idea. As Warland himself puts it, his butterfly "may well be said to possess life, for it has absorbed my own being into itself."<sup>78</sup> It has "imbibed a spiritual essence - call it magnetism, or what you will."<sup>79</sup> The artist has wasted his creative energies on a trivial technological artifact which, rather than being under his control, has total control over him. So the child, "with his grandsire's sharp and shrewd expression in his face," crushes the automaton butterfly with his "plump hand."<sup>80</sup>

Nevertheless, Hawthorne's story remains ambivalent, in that Warland's quest for perfection is given the final word, in terms of nobility and of heroic failure. The ruin of Warland's life's work was "yet no ruin":

He had caught a far other butterfly than this. When the artist rose high enough to achieve the beautiful, the symbol by which he made it perceptible to mortal senses became of little value in his eyes while his spirit possessed itself in the enjoyment of the reality.<sup>81</sup>

Yet this ambivalence in Hawthorne's fiction to the powers of the individual genius, noticeable in both "The Artist of the Beautiful" and "Rappaccini's Daughter," is markedly absent from "Ethan Brand" (1851), which, with *The Blithedale Romance*, is an unequivocal condemnation of monomaniac obsession.

Ethan Brand's search for the "Unpardonable Sin" is an insane dedication to a single ruling idea, the "one thought that took possession of his life."<sup>82</sup> His quest is as futile as the dog chasing its own tail: "Never was seen such headlong eagerness in pursuit of an object that could not possibly be attained."<sup>83</sup>



Like Owen Warland, Brand rejects the utilitarian values predominant in his society, represented in this story by the man who was "of a different order, and troubled himself with no thoughts save the very few that were requisite to his business."<sup>4</sup> More so than in "The Artist of the Beautiful," however, the utilitarian and commonplace in "Ethan Brand" suggests a sense of that human communality and warmth rejected by Brand's egotistic withdrawal.

Brand's intentions began beneficently, inspired by liberal Christian values of humanistic mutuality:

He remembered with what tenderness, with what love and sympathy for mankind, and what pity for human guilt and woe, he had first begun to contemplate those ideas which afterwards became the inspiration of his life; with what reverence he had then looked into the heart of man, viewing it as a temple originally divine, and, however desecrated, still to be held sacred by a brother; with what awful fear he had deprecated the success of his pursuit, and prayed that the Unpardonable Sin might never be revealed to him.

However, Brand commits the fatal error in Hawthorne, of separating intellect from emotion, head from heart. Enclosed in hubristic egotism, he is static and fixed, "standing erect with a pride that distinguishes all enthusiasts of his stamp." Like a brand or a stamp, his ego lacks flexibility, and asserts itself repeatedly in its singular quest, without consideration for others. Brand admits to having committed the "sin of an intellect that triumphed over the sense of brotherhood with man and reverence for God, and sacrificed everything to its own mighty claims!"<sup>5</sup>

Such male control is again exerted over female vulnerability, as the story mentions Esther, "the very girl whom, with such cold and remorseless purpose, Ethan Brand had made the subject of a

psychological experiment, and wasted, absorbed, and perhaps annihilated her soul, in the process."<sup>66</sup>

Brand's Faustian rise and fall is summarised as follows:

Then ensued that vast intellectual development, which, in its progress, disturbed the counterpoise between his mind and heart. The Idea that possessed his life had operated as a means of education; it had gone on cultivating his powers to the highest point of which they were susceptible; it had raised him from the level of an unlettered laborer to stand on a star-lit eminence whither the philosophers of the earth, laden with the lore of universities, might vainly strive to clamber after him. So much for the intellect! But where was the heart? That, indeed, had withered, - had contracted, - had hardened, - had perished! It had ceased to partake of the universal throb. He had lost his hold of the magnetic chain of humanity. He was no longer a brother-man, opening the chambers or the dungeons of our common nature by the key of holy sympathy, which gave him a right to share in all its secrets; he was now a cold observer, looking on mankind as the subject of his experiment, and, at length, converting man and woman to be his puppets, and pulling the wires that moved them to such degress of crime as were demanded for his study.

Thus Ethan Brand became a fiend. He began to be so from the moment that his moral nature had ceased to keep the pace of improvement with his intellect.<sup>67</sup>

Hawthorne thus criticises the apparent detachment of the intellectual manipulator, the "cold," detached observer of others, who errs by neglecting to acknowledge the sense of mutual involvement and participation on which a democratic society depends.

"Ethan Brand," and the other stories discussed in this chapter, may in this way be considered an attack on the claims to objectivity, moral detachment and progress of the Newtonian experimental scientist. The scientist is considered as a solitary, exceptional figure, who endangers society by his dedication to a single, fixed purpose, abstracted from healthy centres of mutuality, emotion and sociability.



Hawthorne's perception of the widening gap between intellectual and moral progress in the middle of the nineteenth century is taken up again by Melville and Emerson, whose work will be discussed in the next two chapters.

CHAPTER 6.

Herman Melville.

The engineer-scientist in the fiction of Herman Melville, as in Nathaniel Hawthorne, is a single individual, not yet part of a collective organisation. In "The Bell-Tower" (1855), Melville explores the anti-social tendencies of the lone Faustian inventor. An "unblest foundling,"<sup>1</sup> Bannadonna's separateness from the rest of orthodox Christian society lends his work "that sort of mystery pertaining to the forbidden."<sup>2</sup> The narrative provides conjectures, rather than certain interpretations, of the secret motivations of his work.

The relationship between Bannadonna and his State patrons suggests issues concerning the political control of science and technology. Because of his exceptional reputation, Bannadonna is employed by the State to build "the noblest Bell-Tower in Italy,"<sup>3</sup> paid for by the wealth created by foreign trade with the Levant. The inventor's personal ambition is thus exploited by the State for its own purposes. The casting of the giant bell, an unprecedented feat of advanced engineering, is a triumph for the individual caster "in which the state might not scorn to share."<sup>4</sup>

These political interests are protected by both the legal system and the Church. When Bannadonna commits a "homicide," killing one of his workmen with a ladle after he has shown fear during the metal smelting process, his "felony" is remitted by the judge, and he is given absolution by the priest. Moreover,



By the charitable that deed was but imputed to sudden transports of esthetic passion, not to any flagitious quality. A kick from an Arabian charger; not sign of vice, but blood.<sup>6</sup>

Melville's prose thus presents ambivalences and tentative, provisional evaluations of the artist-engineer, whose power edges into criminality.

The ambivalent relationship between the engineer and political leadership is also shown in the attribution to Bannadonna of mysterious powers, which give an esoteric and awesome appearance to his scientific and technical knowledge. When he refers to his machine as a living person - "he" rather than "it" - the politicians hide their unease, remaining silent, "unwilling, perhaps, to let the foundling see how easily it lay within his plebeian art to stir the placid dignity of the nobles."<sup>6</sup> Standing at the top of his bell-tower, Bannadonna's unique power is again evident. From his elevated position, achieved through his own technological expertise, he is able to survey "sights invisible from the plain," and can gaze at the people below without being seen: "Invisible, too, from thence was that eye he turned below..."<sup>7</sup> This dream of invisible, unassailable panoptic control through technology will return in the practices of "scientific management" of Frederick Taylor and Henry Ford, discussed in chapter 12, as techniques of power are further developed in the twentieth century.

Bannadonna's fixed, obsessional project has apparently utilitarian bases: to invent a machine that will automate the job of bell-ringing. His criteria for success therefore include efficiency and mechanically accurate time-keeping: "to devise some metallic

agent, which should strike the hour with its mechanic hand, with even greater precision than the vital one."<sup>8</sup>

However, Melville places these dreams of total automation within a Christian context of fears about the human creation of simulacra. In this way, Bannadonna's search for a perfect substitute for human toil moves beyond utilitarian, industrialist values, as he seeks to supply "nothing less than a supplement to the Six Day's Work; stocking the earth with a new serf."<sup>9</sup> His actions would thereby be considered blasphemous within a context of Christian anxieties concerning the Fall, which makes physical labour a deserved consequence of rebellion. The engineer, from this Christian point-of-view, commits the sin of pride in seeking to improve on God's creation: "all excellencies of all God-made creatures, which served man, were here to receive advancement, and then to be combined in one."<sup>10</sup>

"The Bell-Tower" places these religious anxieties with the myth of Prometheus, a central myth of nineteenth century technological expansion. As such, the story may be compared to Mary Shelley's *Frankenstein; or, the Modern Prometheus* (1818).<sup>11</sup>

Like Bannadonna, Dr. Frankenstein is a contemporary scientist who draws on modern scientific techniques. Rather than relying on the old alchemical methods of Paracelsus and Albertus Magnus to create his monster, he undertakes physiological research into human anatomy, using corpses stolen from the local graveyard. The use of electricity in the attempt to resuscitate corpses is Shelley's extrapolation from contemporary science, such as the work of Luigi Galvani and his nephew Giovanni Aldini, who in 1802 experimented on



a recently hanged criminal as part of his research into a dream of reviving corpses through electrical treatment.<sup>13</sup>

In Melville's story, Bannadonna similarly rejects the alchemical mysteries of "Albert Magus" and Agrippa, but goes even further than Dr. Frankenstein, by showing a lack of interest in modern research into natural philosophy. He does not hope "by physiological and chemical inductions, to arrive at a knowledge of the source of life, and so qualify... to manufacture and improve upon it"<sup>13</sup> - the technique of Dr. Frankenstein - but rather approaches the problem of simulating life processes pragmatically, with a minimum of theory. He has the "utilitarian ambition" of Jeffersonian science and engineering:

a practical materialist, what Bannadonna had aimed at was to have been reached, not by logic, not by crucible, not by altars; but by plain vice-bench and hammer. In short, to solve nature, to steal into her, to intrigue beyond her, to procure some one else to bind her to his hand; - these, one and all, had not been his objects; but, asking no favors from any element or any being, of himself, to rival her, outstrip her, and rule her. He stooped to conquer. With him, common sense was theurgy; machinery, miracle; Prometheus, the heroic name of machinist; man, the true God.<sup>14</sup>

Bannadonna's desire to rule a natural world depicted as essentially female follows in the damaging historical tradition of science from Francis Bacon's identification of nature as feminine and passive, and therefore exploitable. Melville shows scientific control to be not magical, but a product of technological design and pragmatic engineering. However, the suggestion of mystery and of Promethean struggle between divine forces remains in the ambiguous pairings of the last sentence quoted above.

This sense of religious dread is also evident in "The Tartarus of Maids" (1855), in which Melville shifts emphasis from "the cynic



solitaire"<sup>16</sup> of "The Bell-Tower" to the new collective factory organisations of mid-century America. The "whitewashed"<sup>16</sup> paper mill becomes a sepulchre in which young girls are subjected to the repetitive tasks of an assembly-line. As a result, their bodily actions become as repetitive and mechanical as the machines they are operating:

At rows of blank-looking counters sat rows of blank-looking girls, with blank, white folders in their blank hands, all blankly folding blank paper.<sup>17</sup>

The girls are thus transformed into the product they make: "handling such white bits of sheet all the time makes them so sheety."<sup>18</sup>

Melville's story charts a dual movement beyond utilitarian and rationalist commonplaces. As the girls are dehumanised through mechanisation, so the central machine appears to take on independent life, ruling in silent, animal power:

Not a syllable was breathed. Nothing was heard but the low, steady overruling hum of the iron animals. The human voice was banished from the spot. Machinery - that vaunted slave of humanity - here stood menially served by human beings, who served mutely and cringingly as the slave serves the Sultan. The girls did not so much seem accessory wheels to the general machinery as mere cogs to the wheels.<sup>19</sup>

Human beings have become slaves to a new god, whose power is associated with its gigantic size and its rigid determinism. The "dark colossal water wheel" moves "with its one immutable purpose."<sup>20</sup>

The perfect determinism of the Newtonian Watch-maker God can be felt in the machine's rigid execution of its tasks:

For a moment a curious emotion filled me, not wholly unlike that which one might experience at the fulfillment of some mysterious prophecy. But how absurd, thought I again; the thing is a mere machine, the essence of which is unvarying punctuality and precision.<sup>21</sup>

The labour-process is exactly timed to take nine minutes, as the assembly-line, invented at the end of the eighteenth century by Oliver Evans, imposes speed, repetition and passivity on its workers decades before Frederick Taylor's introduction of "time and motion" work disciplines at the end of the nineteenth century.<sup>22</sup>

In Melville's story, such mechanical perfection is identified with divine intelligence:

Something of awe now stole over me, as I gazed upon this inflexible iron animal. Always, more or less, machinery of this ponderous, elaborate sort strikes, in some moods, strange dread into the human heart, as some living, panting Behemoth might. But what made the thing I saw so specially terrible to me was the metallic necessity, the unbudging fatality which governed it. Though, here and there, I could not follow the thin, gauzy veil of pulp in the course of its more mysterious or entirely invisible advance, yet it was indubitable that, at those points where it eluded me, it still marched on in unvarying docility to the autocratic cunning of the machine. A fascination fastened on me. I stood spell-bound and wandering in my soul.<sup>23</sup>

This identification of technology with divine power places technology within a context of inevitability and of "metallic necessity," thereby shifting emphasis away from the specific historical power relations that pertain in industrial society. The machine in Melville's story is mystified as a "miracle of inscrutable intricacy."<sup>24</sup> This Christian attribution of divine power to technological extensions of the human body can thus be seen as a potential obscuration of power relations. Such evasive strategies will be seen again in Henry Adams' vision of the dynamos in Paris, as well as in the science fiction examined in chapter 15.

This anthropomorphic mystification of technology makes the invention of possible resistances difficult. In "The Tartarus of Maids," the "passive-looking girls"<sup>25</sup> show no capacity for



disobedience or revolt. Instead, they are "Their own executioners; themselves whetting the very swords that slay them, meditated I."<sup>26</sup> The pallid faces that the narrator sees in the pulp move "Slowly, mournfully, beseechingly, yet unresistingly..."<sup>27</sup> At the end of the story, the girls remain "maids," cut off from vitalising, erotic areas of bodily pleasure and fulfillment.

In *Moby-Dick* (1851), authoritarian power is again considered as silent and deterministic, as Ahab's mania for progress and determinism calls for sacrificial dedication:

Captain Ahab stood erect, looking straight out beyond the ship's ever-pitching prow. There was an infinity of firmest fortitude, a determinate, unsunderable wilfulness, in the fixed and fearless, forward dedication of that glance. Not a word he spoke; nor did his officers say aught to him; though by all their minutest gestures and expressions, they plainly showed the uneasy, if not painful consciousness, of being under a troubled master-eye. And not only that, but moody stricken Ahab stood before them a crucifixion in his face; in all the nameless regal overbearing dignity of some mighty woe.<sup>28</sup>

The gaze of power is here considered as fixity and repetition within an uncertain, "ever-pitching" space. Yet Ahab's suffering and self-sacrifice is also dignified, as he is attributed the status of tragic hero.

Ahab is finally dragged under the sea by the White Whale itself, for the tragic, hubristic limitations on human endeavour in *Moby-Dick* are elemental. In Chapter 58, "Brit," Ishmael warns of natural resistances to science and technology, which thwart human ambitions to dominate nature. The universe is greater than human abilities to master and subdue it:

however baby man may brag of his science and skill, and however much, in a flattering future, that science and skill may augment; yet for ever and ever, to the crack of doom,



the sea will insult and murder him, and pulverise the stateliest, stiffest frigate he can make...<sup>22</sup>

Melville's awareness of the refractory powers of the non-human distinguishes his writing from those myths of scientific and technological omniscience that have tended to underpin much American science fiction writing since his time. Ishmael is willing to respect the "inscrutable tides of God,"<sup>23</sup> and to preserve their inscrutability. Ahab, on the other hand, insists on a singular interpretation of natural phenomena, leading to his mad desire to kill the White Whale, which, in its inscrutability and otherness, appears as a threat to his desire for total control. As in Hawthorne's fiction, therefore, commitment to singularity and deterministic fixity is in Melville a prime source of danger for human society.

Ahab suffers because of his compulsive need to pierce the phenomenal world of events, in order to reveal a static, absolute reality beneath:

All visible objects, man, are but pasteboard masks. But in each event - in the living act, the undoubted deed - there, some unknown but still reasoning thing puts forth the mouldings of its features from behind the unreasoning mask. If a man will strike, strike through the mask! How can the prisoner reach outside except by thrusting through the wall? To me the white whale is that wall, shoved near to me. Sometimes I think there's naught beyond. But 'tis enough. He tasks me; he heaps me; I see in him outrageous strength, with an inscrutable malice sinewing in it. That inscrutable thing is chiefly what I hate; and be the white whale agent, or be the white whale principal, I will wreak that hate upon him.<sup>24</sup>

Ahab's paranoiac quest for the singular is thus part of *Moby-Dick's* examination of the damage of totalising and totalitarian impulses.

In *Israel Potter* (1855), Benjamin Franklin is similarly satirised as a manically totalitarian rationalist. As Melville summarises Franklin's American technologist's know-how:

Having carefully weighed the world, Franklin could act any part in it... Jack of all trades, master of each and mastered by none - the type and genius of his land. Franklin was everything but a poet.<sup>32</sup>

Franklin seeks to impose a total grid of continuous, connected space onto the world. This programme, as in the other stories explored in this chapter, is given suggestions of black magic and mystique. The walls of the American hero's study thus have a "necromantic look," and contain

wide maps of far countries in the New World, containing vast empty spaces in the middle, with the word D E S E R T diffusely printed there, so as to span five-and-twenty degrees of longitude with only two syllables, - which printed word however bore a vigorous pen-mark, in the Doctor's hand, drawn straight through it as if in summary repeal of it...<sup>33</sup>

Israel Potter himself counters such rationalist, mercantile enclosures with an adventurous drifting across boundaries. Nevertheless, Israel's act of rebellion against his tyrannical father is treated ambivalently by Melville, with a sense of loss and of nostalgia. Having "emancipated himself from his sire," Israel's adventures are part of his "fifty years of exile," in which "poor Potter wandered in the wild wilderness of the world's extremist hardships and ills."<sup>34</sup>

In *Moby-Dick*, Ishamel is another drifter, his name itself being provisional and unfixed: "Call me Ishmael."<sup>35</sup> His boundary-crossing and drifting beyond staticity is less nostalgic than that of Israel Potter. Explaining his decision to go to sea as an escape from despair, an alternative to suicide or murder, Ishmael finds only



death and depression amongst the securities and fixities of landmen, "tied to counters, nailed to benches, clinched to desks."<sup>36</sup> The sea, in contrast, initiates a line of flight; it is, in Ishmael's description, "the image of the ungraspable phantom of life."<sup>37</sup> This acknowledgement of the sea as beyond fixity and comprehension informs *Moby-Dick's* criticism of totalising fantasies. The "Cetology" chapter extends this satire on desires for a secure totality in terms of encyclopaedic classificatory and explanatory structures.

Ishmael bases his cetological system on the categories of print technology - folio, octavo, quarto, etc - perhaps suggesting (as a sort of proto-McLuhan) a relationship between the need for hierarchical classificatory systems and the obsessions of a print-based society with visual neatness and order.

Ishmael states his ambition as the "classification of the constituents of a chaos, nothing less is here essayed."<sup>38</sup> However, the rest of the chapter suggests that chaos is an irreducible factor in any system, and that the phenomenological complexity of experience cannot be contained by static abstractions. Of the failures of previous systematisers of whales, "only those following Owen ever saw living whales; and but one of them was a real professional harpooneer and whaleman."<sup>39</sup> The actual details of whales, as they exist in an unfixed, processual environment, thus belie the attempts of scientists and philosophers to place them within static *a priori* systems. In this way, Melville reverses the relegation of empirical particulars in Poe's "Eureka," and in the work of Emerson, discussed in the next chapter.

Ishmael understands the necessity of giving up such ambitions for totality and completeness, for having the last word: "I promise nothing complete; because any human thing supposed to be complete, must for that very reason infallibly be faulty." So his system becomes a meta-system, aware of its own fictiveness. The structure of classification systems, as Félix Guattari puts it in *Molecular Revolution*, "exist not within things, but *alongside* them."<sup>40</sup>

At the end of the "Cetology" chapter, anomalies remain that cannot be fitted into the system: the "rabble of uncertain, fugitive, half-fabulous whales, which, as an American whaleman, I know by reputation, but not personally."<sup>41</sup> Ishmael must necessarily leave his classificatory system unfinished. But this failure is characterised by a tone of humour, rather than of melancholy and regret, as Melville explodes nostalgic needs for certainty, static order and singular truth:

But now I leave my cetological System standing thus unfinished, even as the great Cathedral of Cologne was left, with the crane still standing upon the top of the uncompleted tower. For small erections may be finished by their first architects; grand ones, true ones, ever leave the copestone to posterity. God keep me from ever completing anything. This whole book is but a draught - nay, but the draught of a draught. Oh, Time, Strength, Cash, and Patience!<sup>42</sup>

Melville is thus an early critic of deterministic, totalising ambitions, who tends to view quests for singularity, including those of science and technology, as a transgression of moral taboos, and consequently as a source of both anxiety and fascination.



CHAPTER 7.

Ralph Waldo Emerson.

This chapter will be mainly concerned with the relationship between change and systematisation in the work of Emerson. His strivings for unitary truth and system provide their own critique, as an awareness of change and variety in the universe gives his writings a complexity beyond the simplifications of a static cosmology.

In the essay "Nature" (1836), Emerson gave his criterion for the truth of a theory in terms of its *a priori* power of totalisation:

Whenever a true theory appears, it will be its own evidence. Its test is, that it will explain all phenomena.'

The essay deploys the word "nature" as a magical guarantor of spiritual renewal through unmediated access to a universal totality.

The whole is healing:

In the woods, we return to reason and faith. There I feel that nothing can befall me in life, - no disgrace, no calamity (leaving me my eyes), which nature cannot repair. Standing on the bare ground, - my head bathed by the blithe air and uplifted into infinite space, - all mean egotism vanishes. I become a transparent eyeball; I am nothing; I see all; the currents of the Universal Being circulate through me; I am part and parcel of God.\*

As a "transparent eyeball," Emerson maintains the Romantic urge to span the gap between self and other, by receiving meaning beyond mediation. Thus despite the disclaimer, Emerson's visionary is a supreme egotist: "In proportion to the energy of his thought and will, he takes up the world into himself."\*

The 1836 "Nature" shows faith in total interpretation, based on a view of language as corresponding mimetically to natural objects, and revealing thereby a divinely-ordained spiritual meaning. Emerson puts this schematically:

1. Words are signs of natural facts.
2. Particular natural facts are symbols of particular spiritual facts.
3. Nature is the symbol of spirit.<sup>4</sup>

In this way, Emerson places "facts" within a total signifying system, as signs of an overall, immutable system of moral and spiritual law. Diverse evidences of change, complexity and transformation in the universe are thereby included in a projected unity. However, the complexity and paradoxical strategies of Emerson's prose works against the singular, overall unity that he seeks.

In the 1836 "Nature," Emerson describes the laws of nature as sources of moral law in human society, as "axioms of physics translate the law of ethics."<sup>5</sup> In this way, the transcendentalist Emerson meets the materialist Elihu Palmer, in their use of "nature" and the "organic" as a prescriptive, justificatory argument for human behaviour and politics. Emerson's system seeks to subsume diversity and "boundless" change within a higher moral order, static and unified:

All things are moral; and in their boundless changes have an unceasing reference to spiritual nature. Therefore is nature glorious with form, color, and motion; that every globe in the remotest heaven, every chemical change from the rudest crystal up to the laws of life, every change of vegetation from the first principle of growth in the eye of a leaf, to the tropical forest and antediluvian coal-mine, every animal function from the sponge up to Hercules, shall hint or thunder to man the laws of right and wrong, and echo the Ten Commandments. Therefore is Nature ever the ally of Religion: lends all her pomp and riches to the religious sentiment.<sup>6</sup>



This need to subsume empirical facts within a total system is the basis of Emerson's ambivalent attitude towards physical science. For Emerson, physical scientists must gain access to Platonic ideal-forms beyond empirical sense data. Challenging the certainties of Newtonian materialism as merely "solid seeming," he places such a critique of materialism within a total *a priori* system of spiritual transcendence:

a spiritual life has been imparted to nature; that the solid seeming block of matter has been pervaded and dissolved by a thought; that this feeble human being has penetrated the vast masses of nature with an informing soul, and recognized itself in their harmony, that is, seized their law. In physics, when this is attained, the memory disburthens itself of its cumbrous catalogues of particulars, and carries centuries of observation in a single formula.

Thus even in physics, the material is degraded before the spiritual. The astronomer, the geometer, rely on their irrefragable analysis, and disdain the results of observation. The sublime remark of Euler on his law of arches, "This will be found contrary to all experience, yet is true;" had already transferred nature into the mind, and left matter like an outcast corpse.<sup>7</sup>

Yet Emerson's cosmology may be seen to anticipate modern physics, in its refusal to accept the existence of objective matter independent of the active human mind. The Emersonian "Over-Soul," as an integration of modern science and transcendentalist religion, may thus be seen in Fritjof Capra's recent attempt to unify Buddhism and modern physics.<sup>8</sup>

Emerson's cosmology subsumes the particular and multiple into the singular and unified. He therefore finds empirical scientific activity, based on data collection, inadequate. As in Poe's "Eureka," the spiritual nature of truth is revealed to a poetic, holistic or synthesising imagination, and not to rationality, analysis and quantification:

Empirical science is apt to cloud the sight, and by the very knowledge of functions and processes to bereave the student of the manly contemplation of the whole. The savant becomes unpoetic. But the best read naturalist who lends an entire and devout attention to the truth, will see that there remains much to learn of his relation to the world, and that it is not to be learned by any addition or subtraction or other comparison of known quantities, but is arrived at by untaught sallies of the spirit, by a continual self-recovery, and by entire humility. He will perceive that there are far more excellent qualities in the student than preciseness and indisputable affirmation, and that a dream may let us deeper into the secret of nature than a hundred concerted experiments.<sup>9</sup>

Again as in Poe, unconscious and imaginative processes, such as dreaming, are celebrated as giving access to truth. In this way, the Cartesian separation of human beings into inner-outer dichotomies, presided over by religion and science as separate compartments of thought, is challenged.

In Emerson's later essay "Nature" (1844), the tendency towards staticity of the earlier essay gives way to a universe in which natural variety and change are included as part of a more uncertain system that evades totalisation:

there is throughout nature something mocking, something that leads us on and on, but arrives nowhere; keeps no faith with us. All promise outruns the performance. We live in a system of approximations. Every end is prospective of some other end, which is also temporary; a round and final success nowhere.<sup>10</sup>

As in the earlier essay "Nature," the gap between self and other is intolerable for Emerson, and must be crossed. However, in the 1844 essay, he recognises the impossibility of doing so, as a regretful failure: "always a referred existence, an absence, never a presence and satisfaction."<sup>11</sup> However, in a complex and fluctuating text, nature's absence in relation to the observer becomes itself a promise:



To the intelligent, nature converts itself into a vast promise, and will not be rashly explained. Her secret is untold...

The divine circulations never rest or linger. Nature is the incarnation of a thought, and turns to a thought again, as ice becomes water and gas. The world is mind precipitated, and the volatile essence is forever escaping again into the state of free thought.<sup>12</sup>

The tension in Emerson's thought between a staticising and totalising order, and an awareness of procesual change and fluctuation, is summarised by Lewis Mumford as his "system-shattering openness":

His mission was to examine crumbling foundations, to condemn unsound structures, to clear the site of lumber, to quarry new materials - not to instruct the would-be builders, nor design a new structure... What he retained, through this constitutional ineptitude, was a readiness to examine and even anticipate incredible new discoveries that systems-mongers could not open the door to without acknowledging the insufficiency of their systems.<sup>13</sup>

Emerson's openness to the breakdown of totalising systems in the face of accelerating complexity and change clearly provides a resource for Mumford's own work in these areas, as discussed in chapter 1 of this thesis.

Technology, as part of the desire for empirical control, is an ambivalent force in Emerson. In "Works and Days" (1870), he evaluates technological developments in terms of great cultural promise in danger of not being fulfilled.

The beginning of the essay celebrates technology as an extension of human sensory control over the environment. Technological "arts," such as steam power, galvanism, the telegraph and the photograph, "open the great gates of a future, promising to make the world plastic and to lift human life out of its beggary to a god-like ease and power."<sup>14</sup> Emerson gives to the infinite re-creation of the world

through technology the sanction of divine authority, as an instance of the inevitabilities of Hegelian Spirit:

There does not seem any limit to these new informations of the same Spirit that made the elements at first, and now, through man, works them. Art and power will go on as they have done, - will make day out of night, time out of space, and space out of time.<sup>15</sup>

However, the latter part of "Works and Days" is more cautious, as Emerson qualifies orthodox ideas of progress. In an argument similar to that suggested in Hawthorne's short story "The Birthmark," Emerson fears that "with the material power the moral progress has not kept pace."<sup>16</sup> Believing that "we must look deeper for our salvation than to steam, photographs, balloons or astronomy," he opens up a discussion of the social and psychic effects of technology beyond dominant utilitarian assumptions.

Mechanisation is now seen as a potential threat, altering human behaviour, and turning the human user of technology into a machine:

These tools have some questionable properties. They are reagents. Machinery is aggressive. The weaver becomes a web, the machinist a machine. If you do not use the tools, they use you. All tools are in one sense edge-tools, and dangerous.<sup>17</sup>

Critical of the implications that industrialisation has for the quality of American life, Emerson calls for re-evaluation away from linear mechanical principles. The "measure of time," and the real measure of human "progress" and "economy," should be "spiritual, not mechanical,"<sup>18</sup> involving delight and wisdom as qualities vital for a healthy society:

And this is the progress of every earnest mind; from the works of man and the activity of the hands to a delight in the faculties which rule them; from a respect to the works to a wise wonder at this mystic element of time in which he is conditioned; from local skills and the economy which reckons the amount of production per hour to the finer economy which respects the quality of what is done, and the



right we have to the work, or the fidelity with which it flows from ourselves; then to the depth of thought it betrays, looking to its universality, or that its roots are in eternity, not in time. Then it flows from character, that sublime health which values one moment as another, and makes us great in all conditions, as the only definition we have of freedom and power.<sup>22</sup>

Technological power in Emerson thus does not necessarily have the negative associations of hubris prevalent in Hawthorne and Melville.

Emerson's concern over the destructive effects of imposed utilitarian necessities may be briefly compared with similar areas in Thoreau. The "Economy" chapter of *Walden* (1854) indicts the factory-system of clothing manufacture as being based on the "principal object" not "that mankind may be well and honestly clad, but, unquestionably, that the corporations may be enriched."<sup>23</sup> *Walden* thus redefines the notion of "cost" away from monetary value towards qualitative exchange: "the cost of a thing is the amount of what I will call life which is required to be changed for it, immediately or in the long run."<sup>24</sup>

Accordingly, labouring for utility and survival within a market economy is seen as a restriction on human potential. Liberation from such work is necessary for "growth":

Actually, the laboring man has not leisure for a true integrity day by day; he cannot afford to sustain the manliest relations to men; his labor would be depreciated in the market. He has no time to be anything but a machine. How can he remember well his ignorance - which growth requires - who has so often to use his knowledge? We should feed and clothe him gratuitously sometimes, and recruit him with our cordials, before we judge him. The finest qualities of our nature, like the bloom on fruits, can be preserved only by the most delicate handling. Yet we do not treat ourselves nor one another thus tenderly.<sup>25</sup>

Thoreau questions the relegation of life to mere survival, to those lives of "quiet desperation" led by the "mass of men" in urban

society. His movement out of this society to Walden Pond is therefore an escape from slavery, which he sees as a moral condition not restricted to the South. In competitive society, "you are the slave-driver of yourself." As a form of resistance, Thoreau opens up possibilities for freedom by allowing the imagination, repressed by utilitarian constraints, to play:

Self-emancipation even in the West Indian provinces of the fancy and imagination, - what Wilberforce is there to bring that about?<sup>23</sup>

Thoreau's form of opposition consists in a re-exploration and return to the "gross necessities of life."<sup>24</sup> This movement involves a minimum of technology, as he discovers that "a few implements, a knife, an axe, a spade, a wheelbarrow, etc., and for the studious, lamplight, stationery, and access to a few books, rank next to necessities, and can all be obtained at a trifling cost."<sup>25</sup> Thus *Walden* does not reform technological development, but reverses it, back to the apparent simplicities of pioneer life.

The politics of Thoreau's anarchist withdrawal from competitive capitalist America are echoed in Emerson's respect for a Romantic ideal of individual freedom and wisdom in his essay, "Politics" (1844). Emerson calls for minimal government, and an end to "governments founded on force":<sup>26</sup>

The antidote to this abuse of formal government is the influence of private character, the growth of the Individual; the appearance of the principal to supersede the proxy; the appearance of the wise man; of whom the existing government is, it must be owned, but a shabby imitation... To educate the wise man the State exists, and with the appearance of the wise man the State expires. The appearance of character makes the State unnecessary.<sup>27</sup>



In *Representative Men* (1876), however, Emerson's individualism becomes a fascination for authoritarian leadership. Even after the Civil War, he could characterise Napoleon as "The Man of the World":

He was the agitator, the destroyer of prescription, the internal improver, the liberal, the radical, the inventor of means, the opener of doors and markets, the subverter of monopoly and abuse.<sup>22</sup>

The charismatic leader is celebrated as a proponent of merchant capitalism, his movement across boundaries and borders given as natural and inevitable: "men give way before such a man, as before natural events."<sup>23</sup>

This authoritarian side of Emerson is another element in his paradoxical explorations of reality as a complexity that cannot be fitted into a singular system. Issues of science, technology, value and power are discussed in shifting, open texts that refuse total systematisation, while also showing nostalgia for the security such fixity might afford. The following chapter will explore similar transcendentalist issues of totality and change in the work of Emerson's contemporary, the botanist Louis Agassiz.

## CHAPTER 8.

### Louis Agassiz and the breakdown of total systems.

Russel Blaine Nye summarises the programmatic of Newtonian science at the beginning of the nineteenth century in America in terms of four central principles:

a belief in the inductive method as opposed to simple authority; a belief in the Newtonian doctrine of a mechanistic universe governed by immutable, discoverable laws; a belief (tempered, but nevertheless pervasive) in the efficacy of scientific method as applied to the study of human relations and human problems; and a belief in the unity of science, implying a mechanistic relationship among all branches of knowledge.'

As the discussion of Elihu Palmer and Jefferson in chapter 3 has shown, these belief systems implied power relations, as scientific rationalists employed mythical discourses in an attempt to guarantee the truth and efficacy of their practices.

However, the Newtonian ideal of science as a static, mechanistic and closed system of knowledge was under constant and increasing pressure from factors that suggested the existence of irreversible change and diversity in the universe. In the nineteenth century, then, the Newtonian desire for a general theory unifying all phenomena broke down into a new multiplicity of specialised, fragmented areas of scientific knowledge. In particular, the developing biological sciences indicated complexity, rather than mechanical simplicity, as the basis of reality. As Nye puts it:

The world was a surprisingly complex place, it seemed, not to be reduced to an easily ordered, unified pattern of mechanistic relationships among things. Scientific discovery and speculation produced conflicts, paradoxes, and unresolved questions, while rationalization of them all became more and more difficult. If one assumed with the



Enlightenment that the universe was inflexibly and absolutely rational, the frantic attempt of scientists to make everything fit into the universal pattern became in itself a kind of irrationality.<sup>2</sup>

In *The Order of Things* (1966), Michel Foucault also describes important changes in systems-building in the nineteenth century, when "a profound historicity penetrates into the heart of things, isolates and defines them in their own coherence, imposes upon them the forms of order implied by the continuity of time."<sup>3</sup> This chapter will examine the classical taxonomy of the botanist Louis Agassiz, which came under increasing pressure from the accelerated speed of scientific discovery in the middle of the nineteenth century.

A Swiss emigré, arriving in the United States in 1846, Agassiz inherited the totalising ordering principles of classical European science. Taking up Cuvier's project of an encyclopaedic classification of nature based on direct observation of the comparative anatomy of fossils, he planned thereby to compile a series of volumes which would include the entire field of American natural history. The epic desire for deterministic completion in such work would be criticised later in the nineteenth century by philosophers such as Chauncey Wright and Agassiz' pupil, Charles Peirce, whose attack on total systems will be discussed in the next two chapters.

Agassiz' totalising impulse attempted to fit all the precise empirical data he could collect inside a single, *a priori* system, based on transcendentalist assumptions of divine order. As with Poe and Emerson, then, particulars were to be subsumed in an overall singular. In 1862, Agassiz summarised this project as follows:

the facts must be collected, but their mere accumulation will never advance the sum of human knowledge... It is the

comparison of facts and their transformation into ideas that lead into a deeper insight into the significance of Nature... Facts are the works of God, and we may heap them together endlessly, but they will teach us little or nothing till we place them in their true relations, and recognize the thought that binds them together as a consistent whole.<sup>4</sup>

Agassiz' system was underpinned by a myth of origin that considered the various species of animal and plant life as existing in eternal, static ideal-types, whose unchanging order was ordained by God at Creation. Agassiz thus took for granted the ultimate existence of coherence, divine intelligence and planning in the universe. As in Poe's "Eureka" and Emerson's 1836 "Nature," immutability is a key area of security that holds off the disruptive possibilities of irreversible change.

Accordingly, the *Essay on Classification* (1857) challenges Newtonian materialist determinism by asserting in its place a static system of spiritual determinism:

the character of the connections between organized beings and the physical conditions under which they live is such as to display thought; these connections are therefore to be considered as established, determined, and regulated by a thinking being. They must have been fixed for each species at its beginning, while the fact of their permanency through successive generations is further evidence that with their natural relations to the surrounding world were also determined the relations of individuals to one another; their generic as well as their family relations, and every higher grade of affinity; showing, therefore, not only thought, in reference to the physical conditions of existence, but such comprehensive thoughts as would embrace simultaneously every characteristic of each species.<sup>5</sup>

Agassiz restates the eternal permanence of Cuvier's four great divisions of the animal world - vertebrates, articulates, mollusks, and radiates - as categories inherent in nature itself. As in Emerson, a mimetic correspondence between language and reality is claimed to guarantee unmediated access to eternal truth:



To me it appears indisputable that this order and arrangement of our studies are based upon the natural, primitive relations of animal life - those systems to which we have given the names of the great leaders of our science who first proposed them being in truth but translations into human language of the thoughts of the Creator. And if this is indeed so, do we not find in this adaptability of the human intellect to the facts of creation, by which we become instinctively, and, as I have said, unconsciously, the translators of the thoughts of God, the most conclusive proof of our affinity with the Divine Mind? "

As in Poe and Emerson, Agassiz acknowledges the role of instinctual and unconscious processes in scientific thought. Nevertheless, while constituting an important criticism of the dogmas of Enlightenment rationalism, such a belief also tends to protect Agassiz' system from empirical scrutiny. The *Essay in Classification* was published only two years before the publication in England of Darwin's *The Origin of Species* in 1859. However, as Agassiz' explanatory system came under pressure from such evidence of change and development within species, he merely tended to fall back on dogmatic affirmations of his first principles, and on the authority of his professional reputation. His generalizations became, in his biographer Edward Lurie's words, "sweeping and dogmatic affirmations that seemed to shut off further inquiry rather than to inspire fundamental questioning." As a result, Agassiz became "more and more isolated from any understanding of contemporary interpretations of nature grounded on suppositions other than his own."

Agassiz' system-building must therefore be placed within its social context, as a discourse produced within specific institutional and cultural practices. In this way, Agassiz' social reputation as an authority can be seen to shield his ideas from criticism. Lurie records an occasion when "the weight of his

reputation was so powerful as to impel editor Horace Greeley to refuse to publish an attack on him by an amateur naturalist and to warn the man that it would be futile to pursue a quarrel against such a personage." Moreover, because of the time he spent organising his museum collection at Harvard, begun in the late 1840s, Agassiz was unable to carry out the research necessary to keep up with the accelerating theoretical developments in mid-nineteenth century biology. The career of Agassiz may therefore confirm the theses of Thomas Kuhn and Paul Feyerabend concerning the professional retrenchment of old authorities during times of paradigm-shift. As new ideas become more widely accepted by younger scientists, so old positions are merely reasserted through dogmatic argument and censorship.<sup>23</sup>

The breakdown of deterministic ideas in mid-century America - whether those of transcendentalists like Agassiz, or Newtonians like Elihu Palmer - may be related to institutional changes in the American university system, in relation to state, business and religious interests. Agassiz' Christian view of botany as a complete reading of the Book of Creation was an advocacy of a speculative, non-utilitarian science. In a rapidly industrialising America, such values came under increasing pressure from the utilitarianism of the hegemonic Northern merchant-industrial classes around the time of the Civil War.

Nevertheless, Agassiz was himself an important instigator of links between university science and state funding, in a move to both augment and to replace private patronage. Though his own scientific work relied on the private patronage of Francis Calley



Gray, a wealthy iron manufacturer, Agassiz perceived a need for long-range financial support for science from the state. In this connection, he advocated scientific research free from utilitarian demands for immediate, practical results, and subject to the full and unconditional control of the professional scientists themselves.<sup>9</sup>

Accordingly, in 1853 Agassiz established the Florentine Academy at Cambridge, Massachusetts, as an informal organization designed to promote the ideas of leading American scientists. The Academy called for institutional support from both federal government and private bodies to subsidize graduate instruction and scientific research.

The "Lazzaroni" were ambitious to create an American counterpart to the Royal Society or the French Academy of Sciences, that is, a centralised, national scientific institution. Support for such a move came especially from Alexander Bache, superintendent of the United States Coast Survey, and rear admiral Charles Henry Davis of the United States Navy. Military-capitalist demands for the control and development of geographical space were therefore prime motives for the creation of formal links between state and scientists in the United States.

The Civil War was a vital catalyst in these developments. In February 1862, Congress established a Permanent Commission charged with reporting to the US Navy on scientific research that might be useful for the war effort. Projects such as the development of torpedoes and under-water guns depended on such expert advice. W. H. Armytage records that by 21 September 1865, 257 reports had been made to the government.<sup>10</sup>

The first state-supported national body, the National Academy of Sciences, was founded with a bill passed in Congress in March 1863. Its committees examined technological issues such as the metric system, anti-rusting techniques for ships, hydrometers and naval charts. The NAS still holds a congressional charter designating it as scientific adviser to the federal government. However, Daniel Greenberg points out its lack of power, in that its brief is to offer advice to government only when that advice is sought. As a result of rarely being consulted, the academy played little part in governmental affairs until the Second World War. Nevertheless, the founding of the NAS demonstrates a new trend of government sponsorship of basic scientific activity in America in the last quarter of the nineteenth century.

Such governmental action, as has already been stated, was largely dominated by the utilitarian interests of the hegemonic Northern industrial classes. The third important institutional innovation of the Civil War, the Morrill Acts of 1862 and 1890, passed through pressure by the new industrialists, allocated the sale of public lands for vocational training courses, concentrating especially on agricultural subjects. Federal action of this kind was complemented by private endowments from industrialists themselves, as private millionaires, such as Rockefeller and Carnegie, began to subsidize scientific and technological research. Armytage shows that, up to 1850, most engineers were educated at West Point or Rensselaer Polytechnic in New York (established in 1824). However, the great demand for engineers to develop the railway system, and to expand the oil and steel industries after the Civil War, led to a



sharp rise in trained engineers, educated at the land-grant colleges. In 1840, there were only two engineering schools in America; by 1870, there were seventy.

The subservience of this expanding scientific and technical education to the practical, utilitarian requirements of the expanding capitalist economy may be seen in the first department of entomology, which was founded in 1881 for research into insect pests, and in the geology departments founded in the 1860s to survey Western mineral resources. By the end of the nineteenth century, many major companies, led by General Electric and American Telephone and Telegraph, had introduced research and development departments, employing researchers relatively free of pressures to turn a rapid profit.<sup>11</sup>

Changes in the American university system around the time of the Civil War also led tentatively towards the encouragement of scientific research, within utilitarian strictures. Christian religious controls on education were contested at Harvard, and finally removed with the Presidency of Charles William Eliot in 1869, a move significantly opposed by Louis Agassiz.

In *The Academic System in American Society* (1974), Alain Touraine summarises the modernisation of the universities as a confluence of two main ideologies, Darwinism and progressivism:

It involves much more than simply allowing the students to freely choose the components of their education. It is a rejection of the old dogma of education as a set of moral values and as a conception of man and his virtues. The key word is utility: service not to the community but to society, to what is being created, not to what is being transmitted. Classical studies were supplemented by commercial and industrial ones without the former being considered noble and the latter menial.<sup>12</sup>

University reform was thus part of the growing integration of the new industrialist and business ruling class.

As a new university, Johns Hopkins, founded in Baltimore in 1876, avoided the intellectual struggles with older forms of religious authority that were being fought at Harvard and Yale at that time. Professors were young, courses were presented with no fixed theological commitment, and students were not compelled to attend chapel. Significantly, the keynote address on the opening of the university was by the leading atheist, Darwinist and economic liberal, Thomas Henry Huxley.

Johns Hopkins was the first American university to be wholly dedicated to original graduate research. The word "research" itself, as the university's first president Daniel Coit Gilman pointed out, was newly coined in 1875. Research findings were disseminated by the first university printing press in the country.<sup>13</sup>

These changes in the American university system enabled new ideas, such as those of Darwin and Comte, to be openly discussed in American academic circles. In 1869-70, Eliot invited John Fiske to lecture on "The Positive Philosophy," even though Fiske had been expelled from Harvard nine years earlier for his positivist sympathies. Eliot also gave permission for Chauncey Wright to lecture in psychology in 1870 as part of the new postgraduate courses.<sup>14</sup>

In this way, the older, transcendentalist order of Agassiz' Harvard came under pressure from positivist and empiricist methodologies, and a new self-reflexive interest in the processes of scientific investigation itself. The new group of scientific



intellectuals included a relatively large proportion of Unitarians, who criticised Puritan notions of inherited guilt and asceticism, encouraging instead liberal ideas of individual freedom, and the necessity of freeing scientific investigation from precedents of scriptural authority.<sup>15</sup>

These changes in American philosophy and science centred on various figures associated with the "Metaphysical Club," the name which Charles Peirce gave to a group of scientists, writers, poets, and lawyers which met in Cambridge, Massachusetts in the early 1870s. It was from among this group that many of the new, empiricist challenges to mechanical determinism and totality were produced.

The "Metaphysical Club" discussed the writings of Darwin, Comte and Mill, and developed pragmatic testability as the central criterion of scientific truth. As a result, both idealist and materialist dogmas were challenged, and the totalising systems of earlier science were criticised in the name of a liberal, utilitarian ethic. Moreover, change, chance, uncertainty and probability came to be considered as vital elements in intellectual order. These developments will be discussed in the next two chapters, in the work of Oliver Wendell Holmes, Chauncey Wright, Charles Peirce and Henry Adams.

CHAPTER 9.

Challenges to determinism in Oliver Wendell Holmes and Chauncey Wright.

In his essay, "The Influence of Darwinism on Philosophy" (1909), John Dewey described how Darwinism broke with earlier *a priori* belief-systems. After Darwin, the phenomenon of change in living beings was no longer assumed to be an Aristotelian progression towards a "completed, perfected end." The imputation of a "progressive realization of purpose" to fixed, eternal species was shattered. Darwinism "forswears inquiry after absolute origins and absolute finalities in order to explore specific values and the specific conditions that generate them."<sup>2</sup>

Dewey's essay on Darwinism records a decisive shift towards a provisional, pragmatic approach to scientific truth denying the security of absolute, transcendental guarantees. These are dismissed as evasive, justificatory alibis:

The habit of derogating from present meanings and uses prevents our looking the facts of experience in the face; it prevents serious acknowledgement of the evils they present and serious concerns with the goods they promise but do not as yet fulfill. It turns thought to the business of finding a wholesale transcendent remedy for the one and guarantee for the other.<sup>3</sup>

Dewey thus considers his pragmatist rejection of metaphysical absolutes as introducing a new sense of responsibility into intellectual life:

To idealize and rationalize the universe at large is after all a confession of inability to master the courses of things that specifically concern us. As long as mankind suffered from this impotency, it naturally shifted a burden of responsibility that it could not carry over to the more competent shoulders of the transcendent cause. But if



insight into specific conditions of value and into specific consequences of ideas is possible, philosophy must in time become a method of locating and interpreting the more serious of the conflicts that occur in life, and a method of projecting ways for dealing with them: a method of moral and political diagnosis and prognosis.<sup>4</sup>

Testability in terms of utility and manipulative power thus becomes a central criterion of scientific value. Dewey attributes to Darwinism the break in totalising generalisations necessary to produce a more provisional and empirical science. The contributions made by Oliver Wendell Holmes and Chauncey Wright to this rupture in scientific and philosophical discourse, in the latter decades of the nineteenth century, will be discussed in this chapter.

As a medical doctor, Professor of Anatomy at Harvard, essayist, poet, novelist and lyceum lecturer, Oliver Wendell Holmes embodied a multiple, flexible approach to knowledge. Besides his contributions to medical research, which included his first coining of the term "anaesthetics," first used in October 1846, Holmes also took an early role, as an essayist, in the questioning of Newtonian determinism in America. His writings investigated problems of inheritance and mechanistic determinism within a Christian context of guilt and sin, promoting a liberalisation of both science and religion.

In "Mechanism in Thought and Morals," an address delivered at Harvard in June 1870, Newtonian-Cartesian mechanistic models of human behaviour are opened to doubt, as Holmes recognizes unconscious and unknowable areas of experience beyond the reductive explanations of materialist philosophies. What he calls the "mystery of unconscious mental action" includes areas of intuitive, automatic and involuntary action, inaccessible to simple causal analysis:

The more we examine the mechanism of thought, the more we shall see that the automatic, unconscious action of the mind enters largely into all its processes. Our definite ideas are stepping-stones; how we get from one to the other, we do not know: something carries us; we do not take the step.<sup>5</sup>

Scientific knowledge is no longer the firm ground sought by Descartes, but has become a more uncertain and perilous set of "stepping-stones." Holmes acknowledges the role of intuition in science, which is moreover considered as a product of human creativity. In this way, the unhealthy separation of reason and imagination, and the relegation of the latter quality, evident in doctrinaire rationalists such as Jefferson and Elihu Palmer, is demolished:

What happens when one idea brings up another? Some internal movement, of which we are wholly unconscious, and which we only know by its effect. What is this action, which in Descartes quickly agglutinates contiguous circumstances by their surfaces; in men of wit and fancy, connects remote ideas by partial resemblances; in men of imagination, by the vital identity which underlies the phenomenal diversity; in the man of science, groups the objects of thought in sequences of maximum resemblance? Not one of them can answer. There is a Delphi and a Pythoness in every human breast.<sup>6</sup>

Because imagination and intellect are not analysable according to mechanical principles, on the lines of a system in physics, arguments from physics to human society are inadmissible:

the intellectual product does not belong to the category of force at all, as defined by physicists. It does not answer their definition as "that which is expended in producing or resisting motion." It is not reconvertible into other forms of force. One cannot lift a weight with a logical demonstration, or make a tea-kettle boil by writing an ode to it.<sup>7</sup>

Such challenges to mechanistic determinism have important social and moral consequences. As a Unitarian, Holmes rejected the Puritan doctrine of original sin, by which guilt is inherited from generation to generation. Rejecting "the mechanical doctrine which



makes me a slave of outside influences," Holmes sought "to eliminate all mechanical ideas which have crowded into the sphere of intelligent choice between right and wrong."<sup>9</sup>

A mechanistic view of moral life in terms of "transmissible responsibility" is thus criticised as the basis of doctrines of inherited guilt. As Holmes puts it:

To treat a mal-volition, which is inseparably involved with an internal condition, as capable of external transfer from one person to another, is simply to materialize it. When we can take the dimensions of virtue by triangulation; when we can literally weigh Justice in her own scales; when we can speak of the specific gravity of truth, or the square root of honesty; when we can send a statesman his integrity in a package to Washington, if he happen to have left it behind, - then we may begin to speak of the moral character of inherited tendencies, which belong to the machinery for which the Sovereign Power alone is responsible.<sup>10</sup>

Holmes thus restricts the field of applicability for mechanistic models, in a move counter to those tendencies in figures such as Jefferson and Elihu Palmer discussed in chapter 3. Mechanism is thereby reformed, rather than rejected completely. For Holmes, where the mechanical phenomenon of "inherited tendencies" exists as an inevitability, the individual human being cannot be held morally responsible. Accordingly, he promotes a liberal tolerance in the face of severe Puritan attributions of individual moral responsibility: "The misfortune of perverse instincts, which adhere to us as congenital inheritances, should go to our side of the account, if the books of heaven are kept, as the great Church of Christendom maintains they are, by double entry."<sup>11</sup>

Holmes' novel *Elsie Venner* (1861) further explores this relationship between structures of inheritance and determinism, and moral culpability. As the subtitle, "A Romance of Destiny,"

suggests, the novel posits a deterministic situation against which the victim has no volition or choice. In the Second Preface to the 1883 edition, he summarises his concerns as follows:

Was Elsie Venner, poisoned by the venom of a crotalus before she was born, morally responsible for the "volitional" aberrations, which translated into acts become what is known as sin, and, it may be, what is punished as crime?'<sup>11</sup>

In the novel, the "wandering habits"<sup>12</sup> of the snake-like Elsie Venner are taken by the rest of society as a sign of her transgressive nature:

The more common version of the trouble at the mansion-house was this: Elsie was not exactly in her right mind. Her temper was singular, her tastes were anomalous, her habits were lawless, her antipathies were many and intense, and she was liable to explosions of ungovernable anger.'<sup>13</sup>

However, by the end of the novel, Elsie is temporarily "restored to that truer self which lay beneath her false and adventitious being."<sup>14</sup> Yet the cost of this return to health is her death, as the novel thereby makes its anomalous, lawless element safe. With the marriage of Dudley Venner and Helen Darley, and Langdon's engagement, the novel ends with a further restoration of social and moral order.

*Elsie Venner* may therefore be seen as a liberal reform of issues of criminality, law, deterministic "destiny" and religion. Crucially, Elsie's "aberrations" from the norm are not seen as a moral insufficiency of which she is responsible. Accordingly, the Professor prefers arguments from physiology and even phrenology to religious evaluations of Elsie's mental and physical state:

The limitations of human responsibility have never been properly studied, unless it be by the phrenologists. You know from my lectures that I consider phrenology, as taught, a pseudo-science, and not a branch of positive knowledge; but, for all that, we owe it an immense debt... It has brought out that great doctrine of moral insanity, which has



done more to make men charitable and soften legal and theological barbarism than any one doctrine that I can think of since the message of peace and good-will to men.<sup>15</sup>

In removing religion from evaluations of bodily and mental health and of secular law, Holmes reveals the basis of his explorations in a reformed scientific rationalism. Thus, in criticising the inappropriate extension of mechanistic models into human affairs, Holmes did not reject or deprecate scientific practices themselves, but rather insisted on a more complex understanding of the processes of such work.

Indeed, "Mechanism in Thought and Morals" renews Enlightenment hopes for social progress through an advancement of science. In Holmes' words, science substitutes the "Rise of man" for the "Fall of man," thereby bringing about "the utter disintegration of all the spiritual pessimisms which have been like a spasm in the heart and a cramp in the intellect of man for so many centuries." Knowledge, free from Puritan guilt and fears of hubris, affirms life and progressive change. In its role as questioner of traditional and customary belief, science is thus seen as the key to social improvement:

Does not the man of science who accepts with manly reverence the facts of Nature, in the face of all his venerated traditions, offer a more acceptable service than he who repeats the formulae, and copies the gestures, derived from the language and customs of despots and their subjects? The attitude of modern Science is erect, her aspect serene, her determination inexorable, her onward movement unflinching; because she believes herself, in the order of Providence, the true successor of the men of old who brought down the light of heaven to men.<sup>16</sup>

The creative act of liberation for Holmes is therefore the killing of the father, the archetypical act of American rebellion from the Old World of inherited authority. As he puts it,

Each generation strangles and devours its predecessor. The young Feejeean carries a cord in his girdle for his father's neck; the young American, a string of propositions or syllogisms in his brain to finish the same relative.<sup>17</sup>

Past forms do not have to be inherited. Instead, ideas are testable according to empirical and rationalist criteria:

Our dwellings are built on shell-heaps, the kitchen-midden of the age of stone. Inherited beliefs, as obscure in their origin as the parentage of the cave-dwellers, are stronger with many minds than the evidence of the senses and the simplest deductions of the intelligence.<sup>18</sup>

Holmes' faith in a unitary scientific method is itself inherited from Enlightenment science, such as that promoted by Jefferson and Elihu Palmer. However, for his attack on deterministic inevitabilities, Holmes can be seen as making a vital break with the totalitarian ambitions of earlier Newtonian-Cartesian dogmatists.

This attack was also taken up by Chauncey Wright, a senior member of Boston's Metaphysical Club. In "The Philosophy of Herbert Spencer" (1865), Wright challenges the assumption of totality in science, criticising Spencer's desire to extend scientific investigations to "universal human interests." Wright's essay reveals the faulty and misleading nature of Spencer's methods, in which, "History, society, laws, and morality, - all are claimed as topics with which scientific methods are competent to deal."<sup>19</sup>

Wright thus introduced a positivist distrust of generalisation into Spencer's assumptions of total knowledge. Spencer, he said, "applies a method for the ascertainment of ultimate truths, which a positivist would regard as correct only on the supposition that the materials of truth have all been collected, and that the research of science is no longer for the enlargement of our experience or for the informing of the mind."<sup>20</sup>



Spencer's "law of evolution" is typical of such "Premature and false generalizations, or extensions of descriptions to what is hypothetical or unknown."<sup>21</sup> In positing descriptions as universal, and forcing them into areas to which they may be inapplicable, Spencer's inheritance of the universalising programmes of Newton and Laplace is misplaced. Wright summarises Spencer as:

a writer whose pretensions aim at a system of truth which shall formulate all legitimate human knowledge, but whose performance of the part he has undertaken gives little hope of success in what yet remains to do... the number in regard to which we have been compelled to deny his conclusions illustrates his incompetency for the further development of his encyclopedic abstractions.<sup>22</sup>

The failure of encyclopaedic ambitions suggested by *Moby-Dick's* "Cetology" chapter thus reaches American philosophy in Chauncey Wright.

Although Wright's philosophy undoubtedly draws on positivism, he does not refer to himself as a "positivist." Accordingly, he does not allow the new ideas to become a fixed dogma or "ism." Instead, Wright explores new strategies that are left tentative and uncertain, thereby resisting the blind, incompetent, totalising simplifications of a Herbert Spencer.

"The Philosophy of Herbert Spencer" challenges not only the totalitarian ambitions of mechanistic science, but also the *a priori* assumption of immutability, law and origin which underlie systems such as those of Emerson, Poe and Agassiz. For Chauncey Wright, change is a fundamental reality that denies fixed systems:

Nothing shows a trace of an original, immutable nature, except the unchangeable laws of change. These point to no beginning and to no end in time, nor to any bounds in space. All indications to the contrary in the results of physical research are clearly traceable to imperfection in our present knowledge of all the laws of change, and to that

disposition to cosmological speculations which still prevails even in science.<sup>23</sup>

However, Wright still assumes that change is a surface, under which are discoverable permanent, deterministic structures. The role of the scientist is thus to move between permanence and change, to seek "not the immutable natures which Plato sought for above a world of confusion and unreality, in the world of his own intelligence, but the immutable elements in the orders of all changes, the permanent relations of co-existences and sequences, which are hidden in the confusions of complex phenomena."<sup>24</sup> In this way, Wright's philosophy moves beyond transcendentalist prejudgements, while preserving faith in the ultimate reality of determinism and universal law.

The *a priori* fixities which generated the work of earlier scientists, such as Louis Agassiz, are corrected by an appeal to empirical evidence. Wright cites positivism as favouring "legitimate particular inferences from observation," instead of assuming a universal "law of causation":

It does not suppose that there are throughout nature unbroken series in causation, forming in their entirety intelligible wholes, determinable in their beginnings, their progressions, and their ends, with a birth, a growth, a maturation, and a decay. It only presumes that the perhaps intelligible wholes, both in the sequences and the co-existences of natural phenomena, are composed of intelligible elements; that chaos does not subsist at the heart of things; that the order in nature which is discernible vaguely even to the unobservant implies at least a precise *elementary* order, or fixed relations of antecedents and consequents in its ultimate parts and constituents; that the apparently irregular heterogeneous masses, the concrete series of events, are crystalline in their substance.<sup>25</sup>

Fixity, regularity and stasis are thus reasserted within change and fluctuation. However, Wright insists that this deduction of



generalised order must be related to observed facts, rather than merely asserted *a priori*, so that "to explain any such order by simply defining it externally in vague, abstract terms, and to postulate such orders as the components of nature and parts of one complete and intelligible order, is to take a step in advance of legitimate speculation, and a step backward in scientific method, - is to commit the mistake of the ancient philosophers of nature."<sup>26</sup>

In this way, Wright distanced himself from previous dogmatic systems, both idealist and materialist. The new "legitimate" method of scientific truth was to be based on utility:

Nothing justifies the development of abstract principles in science but their utility in enlarging our concrete knowledge of nature. The ideas on which mathematical Mechanics and the Calculus are founded, the morphological ideas of Natural History, and the theories of Chemistry are such working ideas, - finders, not merely summaries of truth.<sup>27</sup>

The exclusivity of Wright's language - "nothing... but" - already suggests the dogma into which positivist and pragmatist ideas later fell, as they solidified into what, in chapter 14, will be called, after H. T. Wilson, "The American ideology." Nevertheless, Wright's assertion of scientific activity, not as a total description of reality, but as an on-going and necessarily incomplete process of investigation, opens up possibilities for science as an explorative, non-dogmatic enterprise.

With such utilitarian criteria for science, rigid distinctions between science and technology, or pure and applied science, could no longer be upheld:

modern science finds in the requirements of the material arts the safest guide to exact knowledge. A theory which is utilized receives the highest possible certificate of truth. Navigation by the aid of astronomical tables, the magnetic telegraph, the innumerable utilities of mechanical and

chemical science, are constant and perfect tests of scientific theories, and afford the standard of certitude, which science has been able to apply so extensively in its interpretations of natural phenomena.<sup>28</sup>

Hypotheses will be "validated" according to their predictive usefulness in controlling the environment.

This empirical basis for science depends on a positivist myth of a domain of facts external to the observer. Empirical knowledge of these supposedly independent facts is held to be more efficacious in guaranteeing truth-value than more speculative methods based on deductive rationality. Like Oliver Wendell Holmes, Wright therefore trusts the possibility of neutral sense data as a means of scientific verification:

The positivists' principle of verification comes, then, only to this, - that, inasmuch as mankind are nearly unanimous about the testimony and trustworthiness of their senses, but are divided about the validity of all other kinds of authority, which they in a word call the reason, or internal sense, therefore verification by the senses produces absolute conviction, while verification by the reason settles nothing, but is liable to the same uncertainty which attends the primary appeals to this authority for the data of speculative knowledge.<sup>29</sup>

Despite the empiricist myth of representation at the centre of Wright's philosophy of science, his work avoids some of the reductiveness of later scientific methodologists. He thus places his desire for "verification" within an acknowledgement of the possibilities of doubt and uncertainty, admitting that there is "still room for debate as to what constitutes verification in the various departments of philosophical inquiry."<sup>30</sup>

Furthermore, Wright was still willing to accept the value of more speculative forms of knowledge. These he identifies as the domain of philosophy, which explores "another curiosity purified by



its association with the nobler sentiments, - with wonder, admiration, veneration, - and with the interests of our moral and aesthetical natures." In this way, Wright's assertion of pragmatic criteria is qualified, and not allowed to rigidify into a doxa:

However meanly the conclusions of theological and metaphysical speculations may appear, when tried by the objective standard of science, they too have their superiorities, by the test of which science becomes in turn insignificant. Unverified conclusions, vague ideas, crude fancies, they may be, but they certainly are the products of activities which constitute more of human happiness and human worth than the narrow material standards of science have been able to measure.<sup>31</sup>

Wright's openness to forms of knowledge other than those of empirical science separates him from the reductiveness of Jeffersonian materialism, and from later developments in pragmatism in the twentieth century, whereby the reduction of knowledge within state institutions to the narrow requirements of the technobureaucratic state has produced languages of power and operativity, in which speculative or dissident forms of knowledge tend to be either banned or appropriated.

As John Dewey observed in the essay quoted at the start of this chapter, the introduction of Darwinian ideas into American philosophy was a vital element in the revision of previous authorities. Chauncey Wright took the crucial step of attacking Herbert Spencer's generalisation of Darwinism to human society, while defending Darwin's theory of natural selection in its introduction of notions of irregularity, accident and unpredictability into scientific theories. Wright introduced a greater complexity into received notions of order and causality, though remaining fundamentally a determinist, asserting the real

existence of causality and determinism beneath the complexity of causal connections. In "The Philosophy of Herbert Spencer," Wright anticipates the objections made by Einstein and others to the implications of Heisenberg's Uncertainty Principle, by claiming that irregularity "indicates not an abridgement of causality but only an abridgement of our knowledge of it."<sup>32</sup> Irregularity in nature is finally an illusion due to a lack of information, rather than a phenomenon inherent in physical processes themselves.

Similarly, "accidents," that is, occurrences which cannot be predicted or derived from previous knowledge due to the complexity of the given situation, do not imply the presence of uncaused phenomena. In "The Genesis of Species" (1871), Wright clarifies this aspect of Darwin's thought:

in referring any effect to "accident", he only means that its causes are like particular phases of the weather, or like innumerable phenomena in the concrete course of nature generally, which are quite beyond the power of finite minds to anticipate or account for in detail, though none the less really determinate or due to regular causes.<sup>33</sup>

Accident is thus seen as a characteristic not of events but of the observer's imperfect knowledge of them. It is not that events are uncaused, but that the investigator does not *know* the causes of them.

Wright's theory of innovation, of the new, also remains partly deterministic, in that every novel event is assumed to have an antecedent, to prevent an abridgement in causality. In his essay "Evolution of self-consciousness" (1873), the emergence of novelty in the evolution of species is seen as a discontinuous leap, which is nevertheless ultimately related to universal, deterministic laws:

new uses of old powers arise discontinuously both in the bodily and mental natures of the animal, and in its



individual developments, as well as in the development of its race, although, at their rise, these uses are small and of the smallest importance to life... The new uses are related to older powers only as *accidents*, so far as the special services of the older powers are concerned, although, from the more general point of view of natural law, their relations to older uses have not the character of accidents, since these relations are, for the most part, determined by universal properties and laws, which are not specially related to the needs and conditions of living beings.<sup>34</sup>

Wright's challenge to determinism is therefore significant, if partial. A more profound challenge may be seen in the work of Charles Peirce, who proposes chance as a fundamental reality, in interaction with law and order. By the end of the nineteenth century, Henry Adams was exploring the possibilities of chaos and anarchy in science, as Newtonian determinism had broken down radically into a new era of multiplicity and drift. These developments will be discussed in the next chapter.

CHAPTER 10.

Chance and law in Charles Peirce and Henry Adams.

Charles Peirce offered a more radical challenge to determinism than Chauncey Wright. In his work, the operations of chance are considered as fundamental, and increases in novelty, variety and complexity in the universe are all seen to depend on chance action. Interactions of chance and law thus constitute a universe free of rigid deterministic necessities, so that the doctrine that "everything to come is already built in from the beginning" is broken.<sup>1</sup>

Peirce explored the possibility that chance, irregularity and indeterminacy may be factors inherent in nature, and not merely symptoms of an observer's lack of knowledge. In "The Doctrine of Necessity Examined" (1892), he discussed "the common belief that every single fact in the universe is precisely determined by law."<sup>2</sup>

Like Oliver Wendell Holmes, Peirce rejected the assumption that mechanical principles can explain all areas of reality. Moreover, he questioned the faith in empirical observation and ultimate law previously seen in Chauncey Wright:

Try to verify any law of nature, and you will find that the more precise your observations, the more certain they will be to show irregular departures from the law. We are accustomed to ascribe these, and I do not say wrongly, to errors of observation; yet we cannot usually account for such errors in any antecedently probable way. Trace their causes back far enough, and you will be forced to admit they are always due to arbitrary determination, or chance.<sup>3</sup>

Peirce's challenge to mechanistic determinism thereby opens up science to new areas of diversity, change and complexity.



A vital feature of this new science is a recognition of time as an irreversibility, a factor which Peirce's teacher Louis Agassiz had been unwilling to include in his system. Peirce notes an increase in diversification in crucial areas of the universe, including "the life of an individual animal or plant, or of a mind... the history of states, of institutions, of language, of ideas." As with Oliver Wendell Holmes, therefore, Peirce's science provides optimistic challenges to Newtonian inevitabilities and repetitions: "Everywhere the main fact is growth and increasing complexity. Death and corruption are mere accidents or secondary phenomena."<sup>4</sup>

Mechanical law is shown to be inadequate in accounting for these increases in variety and complexity. Novelty emerges, beyond mechanistic explanation, as a spontaneous rupture of law:

By thus admitting pure spontaneity or life as a character of the universe, acting always and everywhere though restrained within narrow bounds by law, producing infinitesimal departures from law continually, and great ones with infinite infrequency, I account for all the variety and diversity of the universe, in the only sense in which the really *sui generis* and new can be said to be accounted for.<sup>5</sup>

Spontaneity and transgression of law are thus recognized as essential aspects of novelty and of life processes in general.

The relationship between law and spontaneity is further examined in "Man's Glassy Essence" (1892). In this essay, Peirce may be seen to anticipate the sort of structures that Ilya Prigogine investigates as "dissipative structures," discussed in chapter 3, whereby increasing complexity in a system may lead to instability. Peirce notes that, "All very complicated substances are unstable..."<sup>6</sup> Mechanical explanations are inadequate to account for

such phenomena, which, significantly, include living protoplasm.

Peirce's challenge to mechanistic determinism recalls James Clerk

Maxwell's contemporaneous discovery of "singular points":

If, then, we suppose that matter never does obey its ideal laws with absolute precision, but that there are almost insensible fortuitous departures from regularity, these will produce, in general, equally minute effects. But protoplasm is in an excessively unstable condition; and it is the characteristic of unstable equilibrium, that near that point excessively minute causes may produce startlingly large effects. Here, then, the usual departures from regularity will be followed by others that are very great; and the large fortuitous departures from law so produced, will tend still further to break up the laws, supposing that these are of the nature of habits.<sup>7</sup>

The concept of "law" thus no longer provides those assumptions of fixity and inevitability on which totalising and totalitarian scientific discourses, and their social and political extrapolations, are based. Instead, Peirce's science maps the formation and breaking of regularities as interactions between chance and habit. As he summarises these inter-relationships:

diversification is the vestige of chance-spontaneity; and wherever diversity is increasing, there chance must be operative. On the other hand, wherever uniformity is increasing, habit must be operative.<sup>8</sup>

The role of science for Peirce is to discover these regularities of habit and law within complex phenomena:

nothing but a principle of habit, itself due to the growth by habit of an infinitesimal chance tendency toward habit-making, is the only bridge that can span the chasm between the chance-medley of chaos and the cosmos of order and law.<sup>9</sup>

Everyday scientific practice is involved in the search for habit in nature, so that, through the development and refinement of scientific methodologies, as much certainty as possible may be discovered. Peirce's science is thus a complex interaction between order and chaos, chance and regularity, randomness and habit. As a



probabilistic science, it attempts to find as much certainty as possible in a universe that includes chance deviations from law.

In the essay, "The Order of Nature" (1878), science is considered to explore degrees of causal orderliness in the universe, as mechanistic notions of deterministic certainty are replaced by a probability theory:

That we ever do discover the precise causes of things, that any induction whatever is absolutely without exception, is what we have no right to assume. On the contrary, it is an easy corollary, from the theorem just referred to, that every empirical rule has an exception. But there are certain of our inductions which present an approach to universality so extraordinary that, even if we are to suppose that they are not strictly universal truths, we cannot possibly think that they have been reached merely by accident.<sup>10</sup>

Emphasising the necessity of provisionality and doubt in scientific thought, Peirce nevertheless considers it the task of inductive science to approach as close to certainty as possible.

One of the untenable assumptions of Newtonian dreams of total predictability and certainty was that certain quantities could be determined through observation without error. Peirce reveals the practical impossibility of such a notion, ignoring as it does the processes of technological mediation in which scientific discourses are produced:

To one who is behind the scenes, and who knows that the most refined comparisons of masses, lengths, and angles, far surpassing in precision all other measurements, yet fall behind the accuracy of bank-accounts, and that the ordinary determinations of physical constants, such as appear from month to month in the journals, are about on a par with an upholsterer's measurements of carpets and curtains, the idea of mathematical exactitude being demonstrated in the laboratory will appear simply ridiculous.<sup>11</sup>

Science for Peirce is concerned with estimating magnitudes of error, under circumstances in which information is not always available.

The conclusions of science therefore "make no pretence to being more than probable, and considering that a probable inference can at most only suppose something to be most frequently, or otherwise approximately, true, but never that anything is precisely true without exception throughout the universe..."<sup>12</sup> No scientist "can maintain that the precise and universal conformity of facts to law is clearly proved, or even rendered particularly probable, by any observations hitherto made."<sup>13</sup>

It was the task of science for Peirce to move towards as much certainty as possible. Like Chauncey Wright, he thereby arrived at a pragmatic, utilitarian criterion for truth. The essay "How to Make Our Ideas Clear" (1878) links scientific truth value with clarity of apprehension of those facts discovered by practical experiment:

Consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object.<sup>14</sup>

The totalising aspect of this statement, its assertion that pragmatic considerations are the "whole" conception of the object, shows again the dogmatic possibilities in early statements of pragmatist approaches to science.

Peirce's advocacy of the need for statistical approaches to certainty was an attempt to preserve a secure area for science in a universe of increasingly discovered complexity. For Henry Adams, on the other hand, even the securities of statistics were illusory. The chaos and anarchy that Adams perceived in all areas of knowledge at the end of the nineteenth century could not be contained by a single scientific method or simple notion of clarity and truth. Newtonian attempts to order and predict phenomena had failed, and statistical,



probabilistic methods suggested for Adams not consolation, but a situation of near-desperate ignorance amid chaos.

In *The Education of Henry Adams* (1918), the possibility of "faith" comes under pressure from the accelerating speed of discovery of unsystematised facts:

At the Statistical Bureau, Worthington Ford supplied any material that curiosity could imagine for filling the vast gaps of ignorance, and methods for applying the plasters of fact. One seemed for a while to be winning ground, and one's averages projected themselves as laws into the future. Perhaps the most perplexing part of the study lay in the attitude of the statisticians, who showed no enthusiastic confidence in their own figures. They should have reached certainty, but they talked like other men who knew less. The method did not result in faith. Indeed, every increase of mass - of volume and velocity - seemed to bring in new elements, and, at last, a scholar, fresh in arithmetic and ignorant of algebra, fell into a superstitious terror of complexity as the sink of facts. Nothing came out as it should.<sup>16</sup>

The appeal to "facts" thus no longer provides for Adams a final guarantee of confidence and security, as it did for Holmes and Wright.

Furthermore, Adams saw limitations and possible evasions in utilitarian approaches to truth. By concentrating on the use-value of new technological and scientific inventions, pragmatic criteria neglected those social effects which moved into irrational, psychic areas of experience. In contrast, Adams' writing attributes a sense of mystery and unconscious power to technology, beyond the securities of simple utility and conceptual clarity. He cites the compass, the pump, the supply-pipe, the sieve, and the reservoir for collecting electricity, as uses to which human beings had put magnetism, "still without knowing how it worked or what it was." The magnet "in its new relation staggered his education by its

evidence of growing complexity, and multiplicity, and even contradiction, in life." In the same way, the dynamo revealed to him a "condition of human ignorance and helplessness before the commonest forces, such as his mind refused to credit." For Henry Adams, science and technology thus bring an increasingly mysterious world, rather than Enlightenment clarities under utilitarian control.<sup>16</sup>

Adams' work explored the new universe revealed by European physicists at the end of the nineteenth century, in which the very notion of materiality central to the Newtonian cosmology was rendered uncertain and conditional. For example, the discovery of radium by the Curies in 1898 suggested an irruption of new, anarchical forces, which ruptured previous certainties, and drove "the scientific lawgivers of Unity into the open."<sup>17</sup> Consequently, Adams began to question science's appeal to an ultimate unity and consistency in the universe.

For the physicist Samuel Langley, the new rays are "little short of parricidal in their wicked spirit towards science." Radium "denied its God - or, what was to Langley the same thing, denied the truths of his Science. The force was wholly new."<sup>18</sup> Not only received notions of law and order, but the very structures of time and space were called into question. The new "economies of force" could not be fitted into the Newtonian scheme of mechanically-acting material forces. Instead, they appeared as "absolute, super-sensual, occult; incapable of expression in horse-power":

He had entered a supersensual world, in which he could measure nothing except by chance collisions of movements imperceptible to his senses, perhaps even imperceptible to his instruments, but perceptible to each other, and so to some known ray at the end of the scale. Langley seemed



prepared for anything, even for an indeterminable number of universes interfused - physics stark mad in metaphysics.<sup>19</sup>

The desire of Chauncey Wright and Peirce, in the early years of pragmatist philosophy, to limit the field of science to the non-metaphysical, is therefore brought into question by Adams' writing.

By 1900, Adams had "entered a far vaster universe, where all the old roads ran about in every direction, overrunning, dividing, subdividing, stopping abruptly, vanishing slowly, with side-paths that led nowhere, and sequences that could not be proved."<sup>20</sup> Within this complexity, new modes of navigation had to be invented, and old, archaic methods discarded. In particular, the search for unity and full determinism, as a means of controlling the new multiplicity, was considered as a habit belonging to systems of thought that had irreversibly broken down.

Adams thus made an early challenge to dialectical systems, as a nostalgic appeal to an overall, unified security which was no longer tenable. Contradictions could no longer be merged into a larger synthesis, to satisfy the dogmas of Hegelian dialectics. Such appeals to a higher unity were desperate, quasi-religious attempts to resuscitate deterministic securities:

Evolution was becoming change of form broken by freaks of force, and warped at times by attractions affecting intelligence, twisted and tortured at other times by sheer violence, cosmic, chemical, solar, supersensual, electrolytic - who knew what? - defying science, if not denying known law; and the wisest of men could but imitate the Church, and invoke a "larger synthesis" to unify the anarchy again.<sup>21</sup>

Adams made the crucial observation that, "For human purposes a point must always be soon reached where larger synthesis is suicide."<sup>22</sup>

Instead, paradox and contradiction are seen as irreducible and vital

elements in the processes of intellectual order. As the "navigator of ignorance,"<sup>23</sup> Adams showed his willingness to accept that "order and anarchy were one, but that the unity was chaos."<sup>24</sup>

Systems-building is thus shown to be based on exclusion and coercion, rather than on inclusion and accommodation. Moreover, the new uncertainty and complexity affected not only the systems of the scientist, but also the historian's interest in linear sequence. The historian, "assuming in silence a relation of cause and effect," must also come to terms with the weight of exogenous facts. Adams realised that history is "in essence incoherent and immoral," and has to be taught as such, "or falsified."<sup>25</sup> Unlike Peirce and Wright, therefore, he saw no possibility of a single, pure methodology able to cope with accelerating complexity and contradiction. He cites the recent discovery of the *Pteraspis*, an apparent anomaly in the theory of Darwinian linear evolutionary development, as an example of the inadmissibility of absolute, overall explanations of history:

Nothing is easier than to teach historical method, but, when learned, it has little use. History is a tangled skein that one may take up at any point, and break when one has unravelled enough; but complexity precedes evolution. The *Pteraspis* grins horribly from the closed entrance. One may not begin at the beginning, and one has but the loosest relative truths to follow up. Adams found himself obliged to force his material into some shape to which a method could be applied.<sup>26</sup>

Adams' work inhabits an ambivalent area in which a need for method and order co-exists with a recognition of their ultimate impossibility. He is complex enough to realize and admit his own nostalgia for familiar order, revealing that, "As a matter of taste, he greatly preferred his eighteenth-century education when God was a



father and nature a mother, and all was for the best in a scientific universe."<sup>27</sup>

However, in the modern era, "all forms" are "shifting phases of motion":

Granting this ocean of colliding atoms, the last hope of humanity, what happened if one dropped the sounder into the abyss - let it go - frankly gave up Unity altogether? What was Unity? Why was one to be forced to affirm it?<sup>28</sup>

Adams was therefore prepared to accept an insecure, uncertain science, "adrift on a sensual raft in the midst of a supersensual chaos."<sup>29</sup> In this way, he pioneered a new form of education, later taken up by Buckminster Fuller, and others, as discussed in chapter 1, that involves a grasp of multiplicity, in response to modern physics, vital to train human beings for the twentieth century:

The child born in 1900 would, then, be born into a new world which would not be a unity but a multiple. Adams tried to imagine it, and an education that would fit it. He found himself in a land where no one had ever penetrated before; where order was an accidental relation obnoxious to nature; artificial compulsion imposed on motion; against which every free energy of the universe revolted; and which, being merely occasional, resolved itself back into anarchy at last.<sup>30</sup>

While these challenges were being formulated in America, the militaristic industrial state was continuing its obsessions with determinism as a form of security and control. This neurotic training for war and industrial labour drew on the utilitarian, pragmatic elements of late nineteenth century science. The provisional explorations of Chauncey Wright and Charles Peirce became the "ism" of "pragmatism," as technocratic power interests formulated utilitarian, deterministic orthodoxies with which to restrict and control divergent, oppositional discourses. Since the

founding of monopoly capitalist society in the late nineteenth century, state power has tended to rely on such deterministic orthodoxies as Social Darwinism, Taylorist "scientific management" and behaviourism, in its quest for mechanistic predictability and authoritarian control. The following chapters will explore the rise of technocratic power at the end of the nineteenth century, and discuss the continuing challenges to deterministic order in the United States, areas opened up by the work of Holmes, Wright, Peirce and Adams.



CHAPTER 11.

The rise of monopoly capitalism at the end of the nineteenth century.

By the end of the nineteenth century, the ownership of wealth in America was becoming increasingly centralised and monopolistic. The stabilization of capitalism at this time depended, at least in part, on the adoption by the American government of the gold standard, which, as Henry Adams observed, was a decisive moment in American history:

For a hundred years, between 1793 and 1893, the American people had hesitated, vacillated, swayed forward and back, between two forces, one simply industrial, the other capitalistic, centralizing, and mechanical. In 1893, the issue came on the single gold standard, and the majority at last declared itself, once for all, in favor of the capitalistic system with all its necessary machinery.<sup>1</sup>

Henry's brother, Brooks Adams, analysed the financial situation in greater detail in *The Law of Civilization and Decay* (1896), in terms of the rise of banking interests over those of industrialists and merchants.

Brooks Adams considers the economic centralization of industrial society as a by-product of speed:

Probably the velocity of the social movement of any community is proportionate to its energy and mass, and its centralization is proportionate to its velocity; therefore, as human movement is accelerated, societies centralize.<sup>2</sup>

He divides the concept of wealth, as a form of stored surplus energy, into two aspects: capital, which stores energy in fixed channels, and money, which is a more flexible source of energy, that

enables actual transformations to take place. Money "alone is capable of being transmuted immediately into any form of activity."<sup>3</sup>

Adams records how the early historical stages of capital accumulation worked in favour of the new industrialists and merchants, and their need for flexible money to be invested in production. These are the interests of Alexander Hamilton and Tenche Coxe in the early American republic, as discussed in chapter 3. By the end of the nineteenth century, however, the banking class, whose interests were not in the production of goods, but in the accumulation of fixed capital for usurious profit, won hegemony over the interests of the industrial, merchant classes.

The establishment of the first stage of this process - the dominance of the industrial producers in Britain, which Adams dates from 1688 to 1815 - was accelerated by the British victory at Plassey in 1757. The seizure and importation of vast quantities of Indian treasure as war booty provided the influx of capital necessary to transform Britain into an industrial society. The expansion of credit based on Indian gold financed investment in the new centralised factory-system of industrial manufacture, led by the new class of industrial producers. Financiers therefore played a vital role in enabling the development of the new industrial technologies. As Brooks Adams put it, in themselves "inventions are passive, many of the most important having lain dormant for centuries, waiting for a sufficient store of force to have accumulated to set them working. That store must always take the shape of money, and money not hoarded, but in motion."<sup>4</sup>



The industrial and merchant classes required that money be plentiful and cheap, and therefore easily available for adventurous investment. Accordingly, it was in their interest to maintain the value of their merchandise relative to coin, for they lost when selling on a falling market. By the end of the eighteenth century, however, the very success of the merchants, in accumulating wealth "until it prevailed over all other forms of force," had raised to power the modern banking class, whose interests differed from those of the industrial producers and merchants.<sup>5</sup>

The rise to power of the new banking class can best be seen in the strategies of control followed by the Rothschild family, heirs to the massive wealth of their father, Mayer Amschel, "Court Jew" to the Landgrave of Hesse. Brooks Adams records that, on the death of Mayer Amschel in 1812, one of his five sons stayed in Frankfurt, while the other four migrated to different European capitals - Naples, Vienna, Paris, and London. In this way, "acting continually in consort, they succeeded in obtaining a control over the money market of Europe, as unprecedented as it was lucrative to themselves."<sup>6</sup>

The power of banking interests such as the Rothschilds', by the end of the nineteenth century, was instrumental in forcing governments to adopt the gold standard, against the interests of the industrial producers and merchants. For the bankers benefitted not from an expanding economy, like the industrialists, but from its contraction:

Self-interest had from the outset taught the producer that, to prosper, he should deal in wares which tended rather to rise than fall in value, relatively to coin. The opposite instinct possessed the usurer: he found that he grew rich when money appreciated, or when the borrower had to part

with more property to pay his debt when it fell due, than the cash lent him would have bought the day the obligation was contracted.<sup>7</sup>

Given their need for abundant currency, merchants relied on the cheapening of the currency when prices fell. They sought arrangements with the directors of the Bank of England, who would, on their part, relieve money shortages with paper money. This system of discounting bills favoured the merchants, to the detriment of bankers, who wished the value of money to rise:

for as long as the Bank continued discounting bills, and thus emitting an unlimited quantity of notes whenever the rate of interest rose, debtors not only might always be able to face their obligations, but the worth of money could not be materially enhanced... with such a system the currency tended to fall rather than to rise in value, in comparison with commodities, and for this reason the owners of the great hoards were at a disadvantage. What powerful usurers, like Rothschild, wanted, was a legal tender fixed in quantity, which, being unable to expand to meet an increased demand, would rise in price. Moreover, they needed a circulating medium sufficiently compact to be controlled by a comparatively small number of capitalists, who would thus, under favourable conditions, hold the whole debtor community at their mercy.<sup>8</sup>

The adoption of a fixed weight of gold as the single standard of currency heavily favoured the lender over the borrower, as the measure of value was no longer the commodity itself, but coin. The bankers could increase the value of money through the clever manipulation of scarcity, like any other article limited in quantity.

Brooks Adams summarises the strategies by which the banker Samuel Loyd manipulated business cycles for the profit of the money-lending class, analysing thereby monetarist methods that continue to underpin modern global capitalism:

he reasoned that under pressure prices must fall to a point lower than in other nations, that then money would flow from abroad, and relief would ultimately be given, even if the



government did not interfere; that this influx of gold would increase the quantity of money, by so doing would again raise prices, and that, when prices rose, pledges forfeited in the panic might be resold at an advance.<sup>9</sup>

Resistance by the producers of goods to these financial changes is made difficult by the sheer extent of monetarist control. In such circumstances, liberal electoral democracy becomes a powerless sham. So the modern financial system analysed by Brooks Adams already appears as a monolithic, absolutist oligarchy:

Although the conventions of popular government are still preserved, capital is at least as absolute as under the Caesars, and, among capitalists, the money-lenders form an aristocracy. Debtors are in reality powerless, because of the extension of that very system of credit which they invented to satisfy their needs. Although the volume of credit is gigantic, the basis on which it rests is so narrow that it may be manipulated by a handful of men. That basis is gold; in gold debts must be paid; therefore, when gold is withdrawn, the debtor is helpless and becomes the servant of the master. The elasticity of the age of expansion is gone.<sup>10</sup>

Brooks Adams was aware of the increasingly central role played by a professionalised police-force in controlling potential rebellion against these ruling class interests:

The aristocracy which wields this autocratic power is beyond attack, for it is defended by a wage-earning police, by the side of which the legions were a toy; a police so formidable that, for the first time in history, revolt is hopeless and is not attempted. The only question which preoccupies the ruling class is whether it is cheaper to coerce or to bribe.<sup>11</sup>

The coercive measures described by Brooks Adams were used to suppress the labour unrest that accompanied the concentration and consolidation of power into monopoly capitalism at the end of the nineteenth century, so that the hereditary wealth and wider cultural hegemony of the ruling elites in both Britain and the United States could be maintained.

The labour disputes which proliferated at this time led many middle class reformers to fear proletarian revolt. Such disputes, which had earlier in American history been small and localised, were now given nationwide exposure by newspaper and telegraph, so that when workers on the Baltimore and Ohio railroad struck in Pittsburgh in 1877, to protest against wage reductions, there were sympathetic riots across the country. However, workers' resistances to the impoverishing effects of monopolisation were brutally suppressed by business interests. For example, on May Day 1886, police and Pinkertons fired on a peaceful crowd of workers in Chicago, who were demonstrating against the employment by the McCormick Harvester Company of three hundred gunmen to terrorize workers into accepting starvation wages, following a lockout. In 1894, the Western Federation of Mineworkers led a massive strike in Cripple Creek, Colorado, which was broken up by the National Guard.

State and industrial interests thus concerned themselves with the violent suppression of socialists, and of socialism. They were aided in such activity by the absence of solidarity amongst the American working-class, as the rapidly institutionalised trade unions defended the crafts of established workers from the new generation of unskilled immigrant labourers from Europe. As another reason for the lack of effective socialist ideas in America, Edward Hyams points to the negative light into which such ideas were placed by anarchist terrorist actions, perpetrated mainly by German and Italian immigrants, and largely provoked by the violence of the police and gangsters hired by employers to control their workers' protests.<sup>12</sup>



Perhaps more significantly, Hyams shows the damage to socialist ideas that stemmed from an over-emphasis on the necessity of monopolistic state control in left-wing revolutionary strategies. In this respect, the popularity of such totalitarian ideas amongst utopians and reformers at the end of the nineteenth century must be stressed. At this time, opposition to monopoly capitalism was mostly seen in terms of the promise of a bureaucratic, statist form of single government emerging from the capitalist process of monopolisation itself.

This faith in single government is a solutionary action in Ignatius Donnelly's novel *Caesar's Column: A Story of the Twentieth Century* (1890),<sup>13</sup> where it merges with nostalgia for a semi-agrarian society. Written out of the author's commitment to the Midwestern agrarian movement, *Caesar's Column* finds ultimate consolation in an agrarian utopia in Uganda, far removed from the threat of proletarian revolution that is the novel's major source of anxiety.

Donnelly speculates on a near future when the monopolisation of resources by a central oligarchy leads to the collapse of "civilization." New York has been transformed into a modern electric city, with elevated and subway trains, street lighting, intercontinental airlines and a push-button technology. However, such technological innovations have led to a degeneration of human beings. Women, for example, have been reduced to the same "soulless likeness," as Donnelly submits to Romantic anxieties about the loss of humanist values in a technologically complex society based on mass production.<sup>14</sup>

The material sophistication of Donnelly's future society is based on usury,<sup>15</sup> and on the exploitation of manual labourers, who inhabit the "Under-World" as a vicious criminalised class, identified, amid racist anxieties, in terms of an "invasion of the Mongolian hordes":

these vast, streaming, endless swarms were the condemned, marching noiselessly as shades to unavoidable and everlasting misery. They seemed to me merely automata, in the hands of some ruthless and unrelenting destiny.<sup>16</sup>

However, in this society, everyone is considered as a victim of an impersonal system:

brutality above had produced brutality below; cunning there was answered by cunning here; cruelty in the aristocrat was mirrored by cruelty in the workman. High and low were alike victims - unconscious victims - of a system.<sup>17</sup>

Donnelly's early use of "system" as a vague term to evade issues of power will recur throughout the twentieth century in conservative justifications for the status quo. Being "unconscious" victims, the issue of personal responsibility, of locating power, becomes problematic.

Similarly, the catastrophic revolt of the proletarian masses, organised by the International Brotherhood of Destruction, is signified in the novel by images that imply natural inevitability:

And if the molten mass of horror should break its limitations and overflow the earth! Already it seemed to me the planet trembled; I could hear the volcanic explosions; I could see the sordid flood of wrath and hunger pouring through these halls; cataracts of misery bursting through every door and window, and sweeping away all this splendor into never ending blackness and ruin.<sup>18</sup>

Donnelly's fear is therefore, as Eric Mottram puts it, characteristically American: "the mutated workers, the poor and the criminals as the source of uncontrollable energy."<sup>19</sup> The



inevitabilities in *Caesar's Column* are Darwinian competitive struggles, which Donnelly compares to waves in the sea climbing over each other, suggesting "the endless competitions of men in the arena of life."<sup>20</sup>

The catastrophe of proletarian rebellion will kill off three-quarters of the world's population, and the remainder, "constituting, by the law of the survival of the fittest, the most powerful and brutal," will form gangs: "the great fighter in each of these will become chief, as among all savages." The disastrous history of the world will then be repeated.<sup>21</sup>

Donnelly's redemptive schema draws on apocalyptic justifications, as the destruction of society may be "God's way of wiping off the blackboard."<sup>22</sup> The novel is thus ultimately concerned with religious, utopian consolation. As Gabriel puts it, "I must save the world from such a calamity."<sup>23</sup> The utopia in Africa is a "return home"<sup>24</sup> to a semi-pastoral society, in which the problem of industrial technology is resolved by a vague compromise: "We do not give any encouragement to labor-saving inventions, although we do not discard them."<sup>25</sup>

Donnelly's novel views state intervention as the solution for an economy that can no longer be considered as a self-regulating machine. Centralised, state control is claimed as an organised, benevolent system, led by a government based on the "long-sighted thoughts of philanthropy, of statesmanship and statecraft" of "a few superior intellects."<sup>26</sup> The agrarian utopia thus betrays an authoritarian programme of social engineering. For the ingenuity of man,

has conquered the forces of steam and electricity, but it has neglected the great adjustments of society, on which the happiness of millions depends. If the same intelligence which has been bestowed on perfecting the steam-engine had been directed to a consideration of the correlations of man to man, and pursuit to pursuit, supply and demand would have precisely matched each other, and there need have been no pauperism in the world - save that of the sick and imbecile.<sup>27</sup>

The dangers of authoritarian control in Donnelly's speculations are also clear in Edward Bellamy's *Looking Backward: 2000-1887* (1888).

Bellamy's utopian novel sold 139,000 copies in its first two years of publication. The popularity of the book, with its prescription of bureaucratic statist forms of socialism, played an important part in the subsequent neglect of more libertarian counter-trends in American socialist thought. The widespread identification of Bellamy's *Looking Backward* with socialism was therefore a serious obstacle to the advancement and discussion of revolutionary ideas in America since its publication in 1888.

The promotion of a single, central bureaucratic government of society is given a spurious guarantee in *Looking Backward* by the word "science," which becomes an alibi for the apparent neutrality of the power interests who superintend the supposedly "rational" planning of society.

Lewis Mumford, writing midway through a twentieth century characterised by a global politics of mass murder and repression in the name of the centralised, monopolistic state, analyses Bellamy's utopia as part of a line that moves from Plato's *Republic*, in support of an absolutist state:

it was an attempt to impose upon a whole community a common military discipline - to drive out the Dionysian love for food and drink and sexual delight, to banish the poet and artist, and to reserve only for the guardians of the state the full exercise of thought. Every form of privacy is



either diminished or denied under this system; every form of tender feeling is repressed. The end product is a community unified, centrally directed, uniformly responsive to command: freed from anxiety, insecurity, mischance or error; and by that fact equally freed from the possibility of growth and improvement.<sup>28</sup>

Such utopias replace Dionysian joy with an homogenous contentment, static, bland, passive, and untroubling to the militaristic status quo.

*Looking Backward* is based mainly on extrapolations from contemporary political and economic developments, against which technological innovations are secondary. Capital has followed its "logical evolution"<sup>29</sup> into a centralised state monopoly, as the nationalisation of industry and commerce is viewed as the single, inevitable solution to the labour unrest of late nineteenth century America.

Bellamy locates the reason for such unrest in widespread fears that the great corporations were preparing for the working class the "yoke of a baser servitude than had ever been imposed on the race, servitude not to men but to soulless machines incapable of any motive but insatiable greed."<sup>30</sup> However, Bellamy's own solutionary programme to alleviate these fears relies itself on mechanical principles of organisation and servitude, and derives its model of militaristic and machine-like efficiency from the great capitalist corporations themselves.

For it is the very effectiveness of the monopolistic corporations in producing material wealth that enables the transition to state capitalism to be peaceful, and in accordance with the demands of "public opinion." For the American people

had seen for many years syndicates handling revenues greater than those of states, and directing the labors of hundreds

of thousands of men with an efficiency and economy unattainable in smaller operations. It had come to be recognized as an axiom that the larger the business the simpler the principles that can be applied to it; that, as a machine is truer than the hand, so the system, which in a great concern does the work of the master's eye in a small business, turns out more accurate results.<sup>31</sup>

As in Ignatius Donnelly, the word "system" here suggests impersonal, mechanical control, conveniently eliding issues of personal and organisational responsibility and power. This model of the state as a mechanistic "system," run on apparently simple, bureaucratic lines according to pseudo-scientific axioms, recurs in the assumptions of Frederick Taylor, and in the theorists of "managerial society," discussed in chapters 12 and 13.

In *Looking Backward*, the workforce is organised on militaristic lines, as an "army of industry."<sup>32</sup> Dreaming that he has returned to nineteenth century Boston, Julian West deploras the chaos of urban life, until he sees a passing military regiment: "there at last were order and reason, an exhibition of what intelligent cooperation can accomplish." He subsequently compares "the scientific manner in which the nation went to war with the unscientific manner in which it went to work."<sup>33</sup> "Science" is thus used as an alibi for the total regulation of the lives of the human beings that make up the industrial workforce. Science is here synonymous with determinism and predictability, while implying that such strategies are inevitable and incontrovertible.

The work of Herbert Marcuse analyses the failures of monopoly state capitalism in the twentieth century, as well as its continued ability to win the consent and submission of the workforce. In *An Essay on Liberation* (1969), Marcuse examines the bodily



incorporation of repression as a "second nature," whereby even those areas of behaviour in which the individual might designate his or her actions as voluntary and free are subject to imposed capitalist control:

Once a specific morality is firmly established as a norm of social behaviour, it is not only introjected - it also operates as a norm of 'organic' behaviour: the organism receives and reacts to certain stimuli and 'ignores' and repels others in accord with the introjected morality, which is thus promoting or impeding the function of the organism as a living cell in the respective society. In this way, a society constantly re-creates, this side of consciousness and ideology, patterns of behaviour and aspiration as part of the 'nature' of its people...<sup>34</sup>

In *Looking Backward*, total control is instigated under the rubric of "public opinion," as the "principle of universal military service applied to the labor question" becomes "a matter of course, rather than compulsion... regarded as so absolutely natural and reasonable that the idea of its being compulsory has ceased to be thought of."<sup>35</sup> This naturalisation of power in utopian fictions is a central technique of their persuasiveness.

Indeed, Julian West's unquestioning submission to the authority of his doctors provides a model for obedience in Bellamy's novel. Undergoing mesmerism from a Professor of Animal Magnetism in order to cure his insomnia, West is accidentally put to sleep for one hundred and thirteen years. Waking in the year 2000 in the house of Dr. Leete, he nevertheless still trusts the authority of the new doctor; Dr. Leete "gave me a wine glass of something or other which sent me to sleep as soon as my head touched the pillow."<sup>36</sup>

Submission to control is deemed casual and unproblematic in *Looking Backward*.

Bellamy's utopia proposed a magical solutionary programme to allay the insomnias of liberal reformers, such as his own Julian West. It consequently inspired the formation of hundreds of clubs, and a "Nationalist Party," devoted to implementing Bellamy's political system. H. Bruce Franklin mentions the June 1890 issue of the *Overland Monthly*, which was completely devoted to Bellamy's ideas. Among the majority of works extending and supporting Bellamy's programme was H. Elton Smith's "The Last Sinner," an early anti-utopian protest in favour of individualist non-conformity.<sup>37</sup>

Another utopian novel of this period, Chauncey Thomas' *The Crystal Button* (1891) emphasises social change through moral reform, while speculating on technological changes in greater detail than *Looking Backward*.

Subtitled "The Adventures of Paul Prognosis in the 49th Century," *The Crystal Button* was published four years after *Looking Backward*, although the author claims in the preface, in response to the popularity of that novel, that it was written as early as 1878. In the preface, Thomas, a Boston coach-builder, describes the imaginative possibilities of a fiction that speculates about science:

Here was a field of inquiry limitless, and with scarcely a footprint. Here the inventor could experiment on the largest scale, with no expense for models or patent-rights. <sup>38</sup>

*The Crystal Button* thus stands at the head of the glut of such work in the twentieth century, as science fiction has become one of the most prolific and lucrative areas of the American entertainment industries.



Paul Prognosis, the hero of the novel, is a successful electrical engineer, experimenting at the vanguard of late nineteenth century technology. He dreams of a future city, called Tone, in which the natural world is under the total control of science and technology, administered by a centralised, monopolistic state. Electric power, generated from the sun, wind and waves, is used to create a clean and healthy environment. However, as in *Looking Backward*, the new society is static and uniform, presided over by the appropriately-named "Government of Settled Forms."

The novel predicts several future technological innovations, such as airships and urban subway systems, but goes further to postulate a situation of absolute control over the environment through scientific knowledge. All animals considered harmful to human beings have been eradicated - lion, tiger, hippopotamus, rhinoceros, crocodile - as nature is completely and brutally subjugated to the requirements of human society, as defined by the Government: "Such extinction of great classes of animal life has been mainly accomplished by direct and systematic warfare in the interests of humanity."<sup>39</sup>

The philosophical alibi for such destructiveness is the assumed inevitability of Darwinian-Spencerian evolutionary processes. The "survival of the fittest," a phrase which, Paul is told, "was a new by-word in your day... is now a gospel."<sup>40</sup> By accepting Spencerian inevitabilities as a scriptural orthodoxy, permission is assumed by the government for control not only of animal life, but also of human beings themselves. In its most extreme case, people are subjected to compulsory sterilisation if their physical or moral

"disabilities" are likely to be transmitted to the next generation, "for it is contrary to every rule of justice that physical and moral disease afflicting the present generation should be allowed to cast its curse upon a helpless and innocent generation yet unborn."<sup>41</sup> This is the force that organises the society at its most overt; elsewhere, stability is maintained through an engineering of consent similar to that found in *Looking Backward*.

The Government of Settled Forms is a single world government, formed not, as in Bellamy's utopia, through economic changes in distribution triggered by the final concentration of capital into a national monopoly. Rather, a moral transformation of the world's population results in the established forms of government "fixed inflexibly in the minds and consciences of the people."<sup>42</sup> This inflexibility is seen as a fundamental value in such utopian dreams of security through stasis.

The earlier chaotic, violent society is transformed by the actions of a single individual, the prophet John Costor, who is drawn by the "guiding star of a single idea," that "there is nothing stable in the universe but Truth."<sup>43</sup> The warnings of Hawthorne and Melville of the totalitarian dangers of those who seek the stability of a "single idea" are ignored. Statist totalitarianisms become instead a blueprint for modern technological rule.

Thomas and Bellamy thus follow different paths to the same end, namely, the security of a static, closed future at the supposedly singular, "logical" termination point of a deterministic history. Although both novels claim apparently limitless possibilities for human progress, the management of their societies on mechanical



principles of efficiency, predicated upon total knowledge of a single "Truth" available to science, suggests a rigidly enforced totalitarian regime. These political realities are smuggled into such utopias beneath alibis of beneficent rule and of scientific progress. Describing the seductiveness of such total solutions, Lewis Mumford observes that, in *Looking Backward*, "the proposed equalization of income, duties, sacrifices, opportunities, seems so palapably just and 'democratic', so unmenacing, so beneficial, that the one element missing in this scheme escapes us because we are already so close to having lost it: namely, there are no alternatives to the system itself."<sup>44</sup>

The key to the utopia of *The Crystal Button* is the technocratic use of knowledge to redesign the environment. Consequently, the guide that the author chooses to explain his future society is a Professor, a Fellow of the Academy of Sciences. He explains that nineteenth century experimental science has finally succeeded in its project for the total explanation of nature:

the youthful period of experimenting and scheming is past, and we now understand the forces and materials that are at our disposal, and can thus work toward any given end with reasonable assurance of success... Science, which merely means *knowing*, has now taken the place of experimenting, which means *trying to know*, and consequently implies ignorance.<sup>45</sup>

At a time when Charles Peirce and Chauncey Wright were exploring a provisional, anti-teleological science, Chauncey Thomas reasserts the archaic Newtonian-Laplacian project of completeness and totality. This myth of completion through a linear accumulation of knowledge remains a commonplace in science fiction stories, and will

be seen again in the work of Isaac Asimov and Arthur C. Clarke, in chapter 15.

In *The Crystal Button*, the application of this newly completed totality of scientific knowledge as instrumental technique acting upon nature produces a society of unprecedented material affluence, which is distributed in an egalitarian manner by the central bureaucracy. Happiness is thereby administered scientifically, in an anticipation of the automated paradises of twentieth century utopian fiction, such as Aldous Huxley's *Brave New World* (1932). In the city of Tone, the "Palace of the Sun" provides "a world in itself, - a tropical world, where summer always reigns, and where nothing is ever allowed to enter that does not bring blossoms, or perfume, or music, or smiles, or happiness in some form; nothing, I should say, other than humanity."<sup>46</sup> The novel thus raises vital questions of what may constitute a liberatory technology, as centrally defined leisure activities are permitted for its off-duty worker army. The complex issues of pleasure, technology and power will be raised again in connection with Henry Ford, and his decisive innovations in twentieth century history, in the next chapter.

The brutality underlying the totalitarian utopias explored by Donnelly, Bellamy, and Thomas was made visible at the time by Mark Twain's *A Connecticut Yankee in King Arthur's Court* (1889). Contemporary industrialisation and plutocracy are satirised in the figure of Hank Morgan, a worker at Colt's gun factory in Hartford, who finds himself in sixth century England. Using his nineteenth century Yankee "hard unsentimental common-sense and reason,"<sup>47</sup> he



soon establishes himself as "THE BOSS"<sup>48</sup> over the superstitious natives.

Morgan realizes that human beings are products of environmental training, and makes this an alibi for his power:

Training - training is everything; training is all there is to a person. We speak of nature; it is folly; there is no such thing as nature; what we call by that misleading name is merely heredity and training. We have no thoughts of our own...they are transmitted to us, trained into us.<sup>49</sup>

Twain's novel is ambiguous as to whether the retraining that Morgan gives to the inhabitants of medieval England is to their benefit, as a means of breaking the old system of slavery and tyranny, or whether Morgan imposes his will on others merely for the sake of power and domination.

Like Brockden Brown's Ludloe or Donnelly's Brotherhood of Destruction, Twain's Hank Morgan founds a secret colony, where he sets up a patent office, a school, a newspaper, a military academy and other elements necessary for a capitalist, industrial society:

In various quiet nooks and corners I had the beginnings of all sorts of industries under way - nuclei of future vast factories, the iron and steel missionaries of my future civilization. In these were gathered together the brightest young minds I could find, and I kept agents out raking the country for more, all the time. I was training a crowd of ignorant folk into experts - experts in every sort of handiwork and scientific calling. These nurseries of mine went smoothly and privately along undisturbed in their obscure country retreats, for nobody was allowed to come into their precincts without a special permit - for I was afraid of the Church.<sup>50</sup>

A simple evaluation of the secret elite as evil is mitigated by the final clause, which suggests the revolutionary, anti-establishment side of Morgan's project. This ambiguity is also present in the apparent promise of the network of "confidential agents trickling through the country some time, whose office was to undermine

knighthood by imperceptible degrees, and to gnaw a little at this and that and the other superstition, and so prepare the way gradually for a better order of things."<sup>51</sup> Moreover, Morgan evaluates England convincingly in terms of master-slave relationships, and questions of obedience to tyrannical authority. He attempts to bring to feudal society bourgeois "freedoms," under which "a man will be his own property, not the property of magistrate and master."<sup>52</sup>

Nevertheless, Morgan's attack on tyrannical power, based on those values of liberal egalitarianism on which America was founded, involves a desire to impose a tyrannical system of his own, by force and persuasion, using his own mechanical automata for that purpose:

There was hardly a knight in all the land who wasn't in some useful employment. They were going from end to end of the country in all manner of useful missionary capacities; their penchant for wandering, and their experience in it, made them altogether the most effective spreaders of civilization we had. They went clothed in steel and equipped with sword and lance and battle axe, and if they couldn't persuade a person to try a sewing machine on the instalment plan, or a melodeon, or a barbed wire fence, or a prohibition journal, or any of the other thousand and one things they canvassed for, they removed him and passed on.<sup>53</sup>

The word "removed" demonstrates Twain's early grasp of the euphemistic language of authoritarian control.

Morgan's secret agents subvert feudal society by creating consumer needs to be met by the new industrial capitalism. For example, Morgan chooses a man to work on developing a stove-polish:

There were no stoves yet, and so there could be nothing serious about stove-polish. All that the agent needed to do was to deftly and by degrees prepare the public for the great change, and have them established in predilections toward neatness against the time when the stove should appear upon the stage.<sup>54</sup>



The consumer is already being sold to the product to perpetuate the capitalist status quo. Morgan imposes his consumerist, industrial technocracy as a form of American imperialism, imparting what he calls the "civilization" of the nineteenth century to medieval England. Describing his "colony" as "a Factory where I'm going to turn groping and grubbing automata into *men*,"<sup>55</sup> in fact, he does the opposite. The "serene volcano, standing innocent with its smokeless summit in the blue sky" gives "no sign of the rising hell in its bowels."<sup>56</sup>

So Morgan's plans to lead a peaceful bourgeois revolution, introducing universal suffrage and freedom of religious worship, end in failure. His attempts at mass education cannot cope with what is seen as human beings habitually fixed in servility: "Did you think you had educated the superstition out of those people?"<sup>57</sup> The revolutionary moment is lost, and habitual obedience and self-sacrifice take over again:

The Church, the nobles, and the gentry then turned one grand, all-disapproving frown upon them and shriveled them into sheep! From that moment the sheep had begun to gather to the fold - that is to say, the camps - and offer their valueless lives and their valuable wool to the "righteous cause", and glorifying it, praying for it, sentimentally slabbering over it, just like all the other commoners. Imagine such human muck as this; conceive of this folly!<sup>58</sup>

Thus despite images throughout the novel of contemporary technology as a form of magic to rival that of Merlin, the novel ends with a clear exposure of the power relations within which modern technology was being introduced. Morgan's "deadly scientific war-material" consists of an electrified fence connected to "twelve immensely strong wires - naked, not insulated - from a big dynamo in the cave - dynamo with no brushes except a positive and a negative one..."<sup>59</sup>

Twain's emphasis on modern technologies of mass destruction, and his attack on myths of progress and the power bases of plutocratic control, thus contrasts sharply with the vogue for utopian dreams in America, prompted by the monopolisation of capitalism at the end of the nineteenth century. His satire provides ambivalent complexities, in vital resistance to the singularisation of discourse prevalent in utopian works such as *Looking Backward* and *The Crystal Button*.

The following chapter will pursue the utopian, militaristic bases evident in Bellamy and Thomas into the twentieth century work of Frederick Taylor and Henry Ford.



## CHAPTER 12.

### Frederick Taylor and Henry Ford.

This chapter will examine the theory of "scientific management" developed by Frederick Taylor and Henry Ford as a central tool of modern capitalist domination in twentieth century America, and beyond.

Frederick Taylor formulated his ideas when working as a foreman for Midvale Steel Company in the 1880s. His system applies simple mechanistic principles to all work processes. *The Principles of Scientific Management* (1913), as the title suggests, asserts the possibility of controlling the behaviour of a workforce through what are asserted to be "scientific," that is, deterministic, methods.

Taylor's desire was to eliminate "wastes of human effort" from all industrial work processes.' Accordingly, there would be no room for individual initiative. Instead, all actions were to be governed by a fixed set of rules and standards, established by the managers. As Taylor put it, "In the past the man has been first; in the future the system must be first," so that the remedy for inefficiency lies "in systematic management, rather than in searching for some unusual or extraordinary man."<sup>2</sup>

Already, the word "scientific" is placed with the word "system," as a bureaucratic structure too large for individual control. Power relations are thus obscured under a rhetoric of supposedly value-free, empirically-valid behavioural rules and procedures. In this way, Taylorism perpetuates bourgeois capitalist travesties of

democracy, as a quantitative levelling down, suspicious of the exceptional or non-conformist, of the "unusual or extraordinary man." Instead, the "system" demands loyalty, obedience and sacrifice.

Taylor's methods are totalitarian in their generalised applicability, as he extends "scientific management" to include "all social activities":

to the management of our homes; the management of our farms; the management of the business of our tradesmen, large and small; of our churches, our philanthropic institutions, our universities, and our government departments.<sup>3</sup>

All areas of human life are seen as potentially reducible to simple, deterministic scientific rules.

Efficiency, as defined by the managers, becomes the fundamental norm against which these areas of human endeavour will be measured. Taylor's principle of efficiency was based on "time and motion" studies, which determined which actions could be judged superfluous to the specific physical task being studied. Speed was therefore the main test of efficiency. The desired end of "maximum productivity" would be achieved when "each man and each machine are turning out the largest possible output."<sup>4</sup> In this way, what was wasteful, according to a criterion of optimum performance, could be eradicated, so that, as Siegfried Giedion puts it, "The human body is studied to discover how far it can be transformed into a mechanism."<sup>5</sup> Similar principles of performativity have formed the basis of management strategies throughout the twentieth century.

The mechanistic foundations of Taylor's theory are disguised under a rhetoric of beneficent reformism. The avowed object of "scientific management" is to move "toward promoting prosperity,



toward the diminution of poverty, and the alleviation of suffering,"<sup>6</sup> thereby promoting "increased opportunities for education, culture, and recreation."<sup>7</sup> Taylor claimed that his system of getting workers to produce more for the same pay would benefit the "third great party, the whole people, - the consumers..."<sup>8</sup> At the start of the twentieth century, then, Taylor brings together many of the central alibis by which modern industrial society perpetuates the status quo. Key words - "output," "system," "consumer," "efficiency," "science," "research" - are already in rhetorical play.

The Enlightenment myth of a liberatory technology to which Taylor appeals is used in this way as a strategy to consolidate the capitalist class system. The alibi of beneficence disguises a strengthening of existing social hierarchies. This is clear in Taylor's assertion that "one type of man is needed to plan ahead and an entirely different type to execute the work."<sup>9</sup> Indeed, Taylor's attitude to the worker under "scientific management" is notorious. Handling pig-iron is described as a task "so crude and elementary in its nature that the writer firmly believes that it would be possible to train an intelligent gorilla so as to become a more efficient pig-iron handler than any man can be." The main requirement of a pig-iron handler is that "he shall be so stupid and so phlegmatic that he more nearly resembles in his mental make-up the ox than any other type." A man who is "mentally alert and intelligent" would be unsuited to the task.<sup>10</sup>

Managers were instructed to choose as models for time and motion study the worker already closest to the Taylorist ideal. The typical

workman chosen was therefore a "first-class man," like Schmidt, whom Taylor describes as "close" with money, and "mentally sluggish."<sup>11</sup> The standard to which all workers were forced to conform was therefore set by those workers who appeared already to fit most closely the criteria of efficiency, speed and obedience. Walt Whitman's proud admission of bodily pleasure and celebratory waste, beyond utilitarianism - "I lean and loafe at my ease observing a spear of summer grass" - was no longer to be tolerated.<sup>12</sup>

Taylorism seeks to reduce the labour process to what Taylor saw as the "one best method."<sup>13</sup> This hunt for the singular entailed the observation of "traditional knowledge" and rule-of-thumb methods, which would then, in Taylor's words, be "codified" and "systematically analyzed."<sup>14</sup> The managers' task would be in "classifying, tabulating, and reducing this knowledge to rules, laws, and formulae which are immensely helpful to the workmen in doing their daily work."<sup>15</sup> These apparently impersonal and abstract rules were to "replace the judgement of the individual workman."<sup>16</sup> The continuing obsession of power interests with codification will be discussed in chapter 14.

Taylorist management is a synthesis of multiple forms of technological control, in which the manager oversees his workers' behaviour by methods of panoptic surveillance. From a specially built office, "every laborer's work was planned out well in advance, and the workmen were all moved from place to place by the clerks with elaborate diagrams or maps of the yard before them, very much as chessmen are moved on a chess-board, a telephone and messenger system having been installed for this purpose."<sup>17</sup>



Taylor openly admitted his role as an experimenter on human beings. Each workman is "studied, taught, and trained, and one may say experimented with, instead of allowing the workmen to select themselves and develop in a haphazard way."<sup>18</sup> In Taylorism, human behaviour is assumed to be law-bound and determined, so that scientific research by an elite of experts can be extended to the "accurate study of the motives which influence men":

At first it may appear that this is a matter for individual observation and judgment, and is not a proper subject for exact scientific experiments. It is true that the laws which result from experiments of this class, owing to the fact that the very complex organism - the human being - is being experimented with, are subject to a larger number of exceptions than is the case with laws relating to material things. And yet laws of this kind, which apply to a large majority of men, unquestionably exist, and when clearly defined are of great value as a guide in dealing with men. In developing these laws, accurate, carefully planned and executed experiments, extending through a term of years, have been made...<sup>19</sup>

For Taylor's contemporary, Henry Adams, the proliferation of exceptions destroyed faith in such totalising theories. Taylorism, on the other hand, sought to extend Newtonian conceptions of mechanistic determinism, predictability and law to the study and governance of human beings in industrial society.

One of the far-reaching implications of Taylorism is its attempt to replace political struggles and debate with "science." Deterministic science is thus held up as the perfect arbiter of human life, as a means of ending conflict by eliminating disputes between worker and management. In the future, "What constitutes a fair day's work will be a question for scientific investigation, instead of a subject to be bargained and haggled over."<sup>20</sup> This totalitarian dream of an end to conflict and debate through

supposedly "neutral" technocratic mediation, administered by a managerial elite, is repeated in the managerial theories of James Burnham, as well as in Isaac Asimov's science fiction stories, based on the desirability of global cybernetic control; subjects discussed in chapters 13 and 15 respectively.

The power of such technocratic theories depends on the eradication of chance and unpredictable elements. Sudhir Kakar cites Comte's "savoir pour prévoir, prévoir pour prévenir" as a basis for Taylor's system: "Henceforth, it was to be a self-evident proposition that all the problems that might hinder the precise and effective functioning of a factory organization were not to be left to the chance ingenuity or momentary inspiration of the worker but were to be confronted and resolved in advance, to be forestalled on the basis of knowledge already available."<sup>21</sup>

Nevertheless, Kakar's study traces the difficulties that Taylor's system ran into from its earliest days, as it aroused opposition from both workers, fellow engineers, and management. In 1911, Samuel Gompers, leader of the American Federation of Labour, urged workers to resist the Taylorist speed-up, speaking in terms of its intolerable imposition of mechanical slavery onto the American worker:

So, there you are, wage-workers in general, mere machines - considered industrially, of course. Hence, why should you not be standardized and your motion-power brought up to the highest possible perfection in all respects, including speeds? Not only your length, breadth, and thickness as a machine, but your grade of hardness, malleability, tractability, and general serviceability, can be ascertained, registered, and then employed as desirable. Science would thus get the most out of you before you are sent to the junkpile.<sup>22</sup>



Opposition to Taylorism also came from financiers, confirming Brooks Adams' thesis in their reluctance to invest in the long-term reconstruction of workplaces with no guarantee of short-term profit.

However, despite these resistances, Taylor's system was adopted in factories as an ideal model of control, and as a supposedly "scientific" theory beyond political ideology. Thus in *Pravda*, on 28 April 1918, Lenin argued for the adoption of Taylorism as a solution to "The Urgent Problems of Soviet Rule": "We should try out every scientific and progressive suggestion of the Taylor system... we must introduce in Russia the study and teaching of the new Taylor System and its systematic trial and adaptation."<sup>23</sup> With the adoption of Taylorist organisation by Soviet industry, the development of a genuinely participatory socialism in the country was severely hindered.

In the United States, Taylorism was used as a basis for the factory-system developed by Henry Ford. With the basic cost of producing the modes of production rising at the end of the nineteenth century, and with wage-cutting an impractical means of lowering production costs, industrial interests looked to Taylor's speed-up as an effective means of increasing productivity. Accordingly, Ford introduced Taylorist organisational methods into his factories, using the material rewards of technological development as a bribe to buy the consent of the workforce for these changes.

In 1913, Ford introduced high-speed electrified assembly-line production at his Highland Park plant near Detroit, thereby reducing the time taken to assemble a car by one third. As a result, he was

able both to raise the wages paid to his workers, and to lower the price of his goods on the market, thereby encouraging consumer spending. Low wages, as Ford said in his autobiography, ultimately work against big business interests, in that they mean "the cutting of buying power and the curtailment of the home market."<sup>24</sup>

Ford's semi-automation of industrial production was a drive, as Lewis Mumford argues, to "invade distant markets, standardize tastes and buying habits, destroy alternative choices, (and) wipe out smaller competitors."<sup>25</sup> In this way, it renewed capitalism, and offset the threat of proletarian revolt, the cause of so much anxiety for bourgeois reformers such as Ignatius Donnelly and Edward Bellamy, at the end of the nineteenth century. In this context, Paul Virilio, in *Speed and Politics* (1977), places Ford at the centre of the American state's ability to survive economic crisis in the early decades of the twentieth century:

The stroke of genius will consist in doing away with the direct repression of riots, and the political discourse itself, by unveiling the essence of this discourse: the transportation capacity created by the mass production of automobiles (since 1914 with Ford) can become a social assault, a revolution sufficient and able to modify the citizen's way of life by transforming all the consumer's needs, by totally remodeling a territory that (need we be reminded of it?) at the beginning had no more than 400 kilometers of road.<sup>26</sup>

In his essay "Americanism and Fordism" (c.1926), Antonio Gramsci examined these new techniques of capitalist invasion, by emphasising the erotic bases of consumerist control. He describes Ford's methods as "a skilful combination of force (destruction of working-class trade unionism on a territorial basis) and persuasion (high wages, various social benefits, extremely subtle ideological and political propaganda)." Ford succeeded in "making the whole life of the nation



revolve around production. Hegemony here is born in the factory and requires for its exercise only a minute quantity of professional political and ideological intermediaries."<sup>27</sup> Under modern capitalism, the political class rules indirectly, through a cultural network that includes commodity consumption as a vital area of authoritarian control.

Ford gave the careful regulation of human energies to the requirements of industrial production an alibi of capitalist democracy, in his celebration of the Model T as the world's first mass produced luxury item. But as in the famous joke - that the purchaser of a Ford Model T could have any colour, as long as it was black - the democratic potential of the motor car was rigidly circumscribed. It is said that the bench seat in the Model T was only 37" wide in a deliberate attempt by Ford to discourage couples from having sexual intercourse in one of his cars. Certainly, Ford's management was notorious in its attempted surveillance of the private lives of the company's employees, as what Gramsci calls the "psycho-physical adaptation"<sup>28</sup> of the worker to the demands of production was extended to the sexual energies of the workforce. As Gramsci put it, "the new type of man demanded by the rationalisation of production and work cannot be developed until the sexual instinct has been suitably regulated and until it too has been rationalised."<sup>29</sup> Industrialism thus becomes another instance of "subjugating natural (i.e. animal and primitive) instincts to new, more complex and rigid norms and habits of order, exactitude and precision which can make possible the increasingly complex forms of collective life which are the necessary consequence of industrial

development."<sup>20</sup> Pleasure is both sanctioned and controlled by the requirements of commodity production, as the worker is encouraged by capitalist interests to consume in order to "maintain and restore the strength that has been worn down by the new form of toil."<sup>21</sup>

Ford's role in the formation of modern consumer capitalism has been discussed by Edward Hyams, in *The Millenium Postponed* (1974), a book written in a context of the failures of socialist ideas to make a widespread impact, after the travesty of the Soviet Revolution and decades of social democracy in Western industrial nations. Hyams points to the strengthening of capitalist interests in several crucial areas in the twentieth century, so that Marxist dreams of a dialectic of history, in which the capitalist state will inevitably wither away, must be relinquished as simplistic consolations. Orthodox Marxists did not foresee several vital changes, which Hyams summarises as follows:

(i) The mass-production techniques invented by the greatest industrial genius of the century, Henry Ford, and the amount of surplus value which technologically sophisticated industry can produce, with the consequent need for capitalists to pay higher and higher wages in order to create a market for their product. In other words, they did not and could not foresee that scientific progress plus the steady pressure of his own economic thinking on both worker's organizations and capitalism, would ensure that after a certain trough in the curve of decline workers' wages would begin to rise.

(ii) The flexibility and enormous growth following on the above, of the ancient device of usury, in the expansion of credit commerce to enable the workers to become the largest consumers of durable consumer goods - owners of houses, car, etc., on credit, a credit which furthermore had the advantage for the capitalists of keeping the worker bound by legal obligations to the capitalist system. He no longer had nothing to lose but his chains.

(iii) The advent, in John Maynard Keynes, of a genius capable of adapting socialist economists' ideas for controlling the economy and its growth, to capitalist ends. After Keynes it was no longer necessary for capitalism to be governed simply by uncontrollable market fluctuations; it



could be controlled and steered, though within certain limits.

(iv) The growth of very large industrial and commercial corporations to the point at which they could be managed, like the State, only by a bureaucracy; and the scale of State interference in capitalist business, together resulting, under trade-union pressure, in partial adoption into capitalist enterprise of socialist planning and a measure of socialist welfare.

(v) The extent and pace of the expansion of world trade.

(vi) Finally, the threat of exhaustion of certain natural resources. A socialist, like an expanding capitalist, assumption was that these would be virtually inexhaustible. As a result of the deliberate fostering of demand for consumer goods by capitalism and, of course, of excessive population growth, supplying demand on a fair-share basis must result in exhaustive consumption of natural resources on such a scale that certain commodities essential for the continuance of a high-consumption economy will soon become scarce.<sup>32</sup>

Hymas raises vital issues which will recur in the rest of this thesis. The following chapters will discuss the development of state bureaucracy in the twentieth century, as Fordist-Taylorist strategies of capitalist management form the basis of technocratic power in modern America society.

CHAPTER 13.

America as technocratic system in the twentieth century.

W.H. Armytage analyses American industrial hegemony in the early twentieth century in terms of an inter-relationship between the four basic technologies which America contributed to Europe - the motor car, petroleum, electric power and production engineering.

War, again, was an important catalyst for technological development. The United States emerged from the First World War in the 1920s as the world's most powerful country, and its creditor for global expansion on American capitalist lines. Moreover, during the war, federal funding of scientific research became more effectively organised. For example, the National Research Council, formed on a permanent basis in May 1918, was established to promote and apply scientific knowledge on behalf of the President of the United States.'

America's inadequacy in aviation research and production during World War One - it possessed only 23 aircraft, whereas France owned 1400 and Germany 1000 - led to the establishment of the National Advisory Committee for Aeronautics. Nevertheless, such moves were tentative. Daniel Greenberg quotes James B. Conant of the American Chemical Society, who recalled that when the Society offered its services to the Secretary of War, the latter replied "that it was unnecessary as he had looked into the matter and found that the War Department already had a chemist."



But the integration of science and technology with the demands of state and business power was strengthening. The First World War demonstrated for Randolph Bourne the integration of the young intelligentsia of America into the instrumental requirements of the state. In his essay "Twilight of Idols" (1917), he describes the new workers in American society as follows:

They have absorbed the secret of scientific method as applied to political administration. They are liberal, enlightened, aware... They are a wholly new force in American life, the product of the swing in the colleges from a training that emphasized classical studies to one that emphasized political and economic values. Practically all this element, one would say, is lined up in service of the war technique... What is significant is that it is the technical side of the war that appeals to them, not the interpretative or political side. The formulation of values and ideals, the production of articulate and suggestive thinking, had not, in their education, kept pace, to any extent whatever, with their technical aptitude.\*

The word "technocracy," defined by the O.E.D as "the control of society or industry by technical experts; a ruling body of such experts," was first coined at this time. The first reference to the word in the O.E.D. is from W.H. Smythe, who wrote in *Industrial Management* for March 1919 that, "For this unique experiment in rationalized Industrial Democracy I have coined the term 'technocracy'."

One of the early American theorists of modern society as a complex mechanical system, ruled by a technical and managerial elite, was Thorstein Veblen. In *The Engineers and the Price System* (1921), Veblen put forward the idea that industrial managers, those concerned with the technical means of production, were gaining decisive control of industrial societies throughout the world, because the increasing diversity, specialisation and complexity of

their work was making them indispensable to the maintenance and expansion of those societies. Like Frederick Taylor, Veblen claimed that modern managers had access to scientific rules and axioms, which could be applied to industry to expand the productive capacity of the nation. The supposed "scientific" nature of these principles, it was asserted, would guarantee their neutrality. As a value-free methodology, not subject to vested political interests, scientific principles would replace the arbitrary exercise of power by the ownership class.

Veblen recalls Brooks Adams in criticising the corporate financiers and "captains of industry" who hinder the emergent managerial class by seeking to maintain prices and profits, rather than to increase productivity and growth. Financial interests thus place restrictive controls on the ability of the technical managers to increase material output.

In *The Engineers and the Price System*, Veblen sought a mechanical system that would apparently remove politics from industrial production. As he put it, "Politics and investment are still allowed to decide matters of industrial policy which should plainly be left to the discretion of the general staff of production engineers driven by no commercial bias." He gives permission for technical managers to be "arbiters of the community's welfare," through the assumed scientific objectivity possessed by the technical managerial class."

Veblen's model of society is therefore that of a "system," working impersonally, deterministically and analysable scientifically. As a result, he deems political value judgements



irrelevant, and suppresses problems of political power and exploitation:

In more than one respect the industrial system of today is notably different from what has gone before. It is eminently a system, self-balanced and comprehensive; and it is a system of interlocking mechanical processes, rather than of skilful manipulation... It is of an impersonal nature, after the fashion of the material sciences, on which it constantly draws... This industrial system runs on as an inclusive organization of many and diverse interlocking mechanical processes, interdependent and balanced among themselves in such a way that the due working of any part of it is conditioned on the due working of all the rest.<sup>5</sup>

This mechanical model of industrial society tends to make the governors of society invisible, hidden behind the impersonal and automatic workings of a machine. By obfuscating issues of power, domination, and political choice and struggle in this way, Veblen's model tends to perpetuate existing hierarchical structures and the dominant myths by which they are maintained.

Similar technocratic ideas of society as a system of neutral, machine-like operations, controlled by a seemingly apolitical bureaucratic elite, were developed by James Burnham during the Second World War.

He announced in the title of his book a new revolution in America, Germany and the Soviet Union: namely, *The Managerial Revolution* (1941). Burnham's theory reiterates Veblen's, as he sees the developed nations of the world undergoing a transition from capitalism to an era in which a new class of managers, those in control of the technical means of production - the organisation of materials, tools, machines, and labour - were gradually assuming decisive power.

As the tasks of the management bureaucracy become more highly specialised, relying on expertise in the physical, psychological and social sciences, and as the capitalist class increasingly withdraws from the direct running of economic affairs, so Burnham claimed that the actual control of the property-owning class becomes "tenuous, indirect, intermittent."<sup>6</sup> As with Veblen, therefore, the indispensability of the managers, in terms of their increasingly specialized technical knowledge, is confused with their acquisition of real political power.

For Burnham, managerialism obviates the need for socialism, as the rise of bureaucratic administration and planning is a "revolution" in itself. Burnham thus calls for a "localization of sovereignty,"<sup>7</sup> whereby boards and bureaus replace parliament as lawmaking and judiciary bodies. As this centralisation of the economy destroys the independent economic bases necessary for genuine political opposition, Burnham predicts the necessity of a system of one-party monopoly as the most probable form of future government. The strong, monopolistic state, familiar in the utopian fiction of Edward Bellamy, is again considered to be the most effective programme for modern industrial society.

Burnham asserts that the "intent of this book is not journalistic but scientific,"<sup>8</sup> and it is this claim to scientific objectivity that provides the author with an alibi for ignoring the political implications of his theory. Accordingly, Burnham approaches questions of power, only to dismiss them in the name of a supposedly value-free sociology. This strategy is especially noticeable when he introduces the subject of "exploitation":



This word ("exploit") is often used in a moral or psychological rather than a mere neutral historical and economic sense. For example, a "bad" employer who pays his workers sweatshop wages is said to "exploit" his workers, whereas a "good" employer who pays union wages does not. As the word is used in this book, there is no moral or psychological reference of any kind. By an "exploiting" economy is meant simply an economy wherein one group receives a relatively larger share of the products of the economy than another... independently of any moral judgement or of the psychological motives of the individuals concerned.<sup>9</sup>

So Burnham takes the curse off the term "exploitation," as elsewhere ideas of "fascism" and "communism" are analysed in ways that emphasise the apparently neutral role of the managerial elite, while suppressing complex discussion of those issues of morality, psychology, power and leadership implied by these systems of political control.

Burnham's managerial theory was attacked at the time by C. Wright Mills, in his essay "A Marx for the Managers" (1942). Mills shows how Burnham confuses the indispensability of the managers with power. "As experts," Mills observes, the managers "give advice, but they receive orders."<sup>10</sup> In Nazi Germany, one of Burnham's examples of the rising managerial class, real power remains with the ownership class:

The question is: Where is the power? And the answer is: It is the structure of domination, which is the state with its monopoly of physical force, and fused within it the industrialists and their agrarian colleagues.<sup>11</sup>

Mills points out how Burnham neglects the capacity of bourgeois power interests to consolidate themselves through the disposition of property to the next generation: "It is pertinent that the sons of the managers do not inherit the managed property but rather the relatives of the absentee owners."<sup>12</sup> The relative insecurity of

tenure for technical experts cannot match this established power. Moreover, most members of the technical bureaucracy accept the dominance of the ownership class, and show loyalty to the status quo.

At one point in *The Managerial Revolution*, Burnham admits to a complexity beyond his analysis:

The rules of managerial society do not really proceed scientifically any more than has any other ruling group. Their social aspirations are hidden by ideologies, not clarified by a genuine social science. The ideologies mask what is happening, not only from men generally, but from the rulers themselves. When a process is not subjected to scientific control, there is no systematic means for the elimination of errors, no rational device for the resolution of conflicts: errors may accumulate into disasters; conflicts tend toward catastrophes.<sup>13</sup>

Burnham dreams of a genuinely rational social science that will provide programmes for social engineering, to eliminate errors, catastrophes and conflicts in society, providing thereby the security of an homogeneous space of control.

His work therefore turns the state into the ultimate guarantee of order, the absolute authority to which sacrifice must be made. Bureaucracy becomes a god, and the managers a new priesthood, as Edward Hyams suggests:

Wherever and whenever the State is regarded as being a transcendent entity, as being morally superior to the individual citizen just as God is regarded by the religious as being morally superior to man, the State becomes God... The bureaucrat who manages it is then automatically and inevitably invested with a power for the use of which he is not answerable to the people severally, but to the State whose will he, at the same time, interprets.<sup>14</sup>

The behaviourism of E.F. Skinner is based on a similar call for individual sacrifice in the name of a statist, managerial society. In *Beyond Freedom and Dignity* (1971), Darwinism is used as an alibi



for the inevitability of authoritarian control: "Many social practices essential to the welfare of the species involve the control of one person by another, and no one can suppress them who has any concern for human achievements."<sup>15</sup>

Like Taylor and Burnham, Skinner asserts the scientific validity of his methods: "The technology of behaviour which emerges is ethically neutral, but when applied to the design of a culture, the survival of the culture functions as a value."<sup>16</sup> This survivalism of the collective depends for Skinner on the suppression of those liberal individual freedoms on which the American constitution was founded:

Life, liberty, and the pursuit of happiness are basic rights. But they are the rights of the individual and were listed as such at a time when the literatures of freedom and dignity were concerned with the aggrandizement of the individual. They have only a minor bearing on the survival of a culture.<sup>17</sup>

However, beneath this rhetoric of radicalism, Skinner gives basic support to the status quo of elite rule, as collective survival is seen to depend on a rigidly hierarchical and authoritarian system of state control. In a "large fluid population," says Skinner, "the control of the population as a whole must be delegated to specialists - to police, priests, owners, <sup>teachers</sup>, therapists, and so on, with their specialized reinforcers and their codified contingencies."<sup>18</sup>

Skinner's utopian novel *Walden Two* (1948) also suggests the desirability of a bureaucratically planned society. The question raised by the novel is: "what are the techniques, the engineering practices, which will shape the behavior of the members of a group so that they will function smoothly for the benefit of all?"<sup>19</sup> At

the start of the novel, a flock of sheep provides the model for the behaviour of human beings in society. The sheep are grazing in a field, and the electric fence which had previously enforced their enclosure has been replaced by string. The sheep have been successfully trained to obedience and passivity through positive reinforcement, a technique by which the reality of coercive power can therefore be rendered invisible.

This invisibility is the ultimate aim of control for the technocrats of Walden Two:

We can achieve a sort of control under which the controlled, though they are following a code much more scrupulously than was ever the case under the old system, nevertheless *feel free*. They are doing what they want to do, not what they are forced to do. That's the source of the tremendous power of positive reinforcement - there's no restraint and no revolt. By a careful cultural design, we control not the final behavior, but the *inclination* to behave - the motives, the desires, the wishes.<sup>20</sup>

The aim is to "exploit every alternative to forcible control. By skillful planning, by a wise choice of techniques we *increase* the feeling of freedom."<sup>21</sup>

The methods used by this "we," the technocratic elite of managers and planners, are assumed to be scientific. Frazier claims: "All we use is unbiased information."<sup>22</sup> This supposedly impersonal "science" replaces the need for both the "head" and "heart" of the Promethean leader:

The leader or hero supplements a faulty science. That's his first function - to use his head and heart where science fails. We have no need for him here. Our Planners act perfectly well in practically complete anonymity.<sup>23</sup>

The word-idea "science" is thus again given as an alibi for an evasion of personal responsibility for power and control, and an elision of issues of selective leadership. Nevertheless, the



technocratic elitism of the state is clear, as specialisation is used as an argument against democratic participation:

when we've acquired a behavioral technology, we can't leave the control of behavior to the unskilled... The people are in no position to evaluate experts.<sup>24</sup>

As in the nineteenth century utopias of Edward Bellamy and Chauncey Thomas, *Walden Two* gives magical guarantees of the beneficence and efficacy of its system, misleadingly playing down the role of the controllers by claiming that they are "more likely to be looked on as servants than masters, although we strive for a neutral attitude."<sup>25</sup> The absolutist control promoted by *Walden Two* is thus given the guarantee of beneficence typical of the requirements of technocracy. Skinner also guarantees an end to the conformity and uniformity prevalent in American society since World War Two:

We are utterly free of that institutional atmosphere which is inevitable when everyone is doing the same thing at the same time. Our days have a roundness, a flexibility, a diversity, a flow. It's all quite pleasing and healthful.<sup>26</sup>

Yet this influx of change and diversity is merely a rhetorical attempt to succeed where the staticity of previous utopias failed. It is belied by the writing itself, the fixed propaganda of which does not allow opportunities for multiple or flexible interpretation. It is to this issue of singular, authoritarian interpretation in the forms of utopian fiction that Samuel Delany addresses his reforms of science fiction, moves which will be discussed in chapters 16 and 17.

The threat of change and diversity is mitigated by the careful socialisation of children in *Walden Two*, as Skinner seeks to offset contemporary fears of disobedience and revolt. In this utopia, children are trained in the virtues of deferred gratification and

self-control at the age of four. A sugared lollipop is presented to them, just out of reach, and then withdrawn, as an example of "putting temptation out of reach."<sup>17</sup> Walden's children are also made to stand hungry for five minutes in front of a bowl of soup: "The assignment is accepted like a problem in arithmetic. Any groaning or complaining is a wrong answer."<sup>18</sup> This is not, however, an instance of self-control: "don't be misled, the control always rests in the last analysis with society."<sup>19</sup>

As a result of such control methods, the children of Walden Two are "well-behaved."<sup>20</sup> Moreover, when observed at play, "Some kind of marching game was in progress."<sup>21</sup> Skinner is thus both reassuring and complacent as to the militaristic obedience of American youth, in a novel written during the first stirrings of the rebellions of the Beats.

*Walden Two* presents its arguments for a managerial technocracy in the familiar didactic manner of authoritarian utopias. However, the novel does provide its own dissenting voice, in the figure of Castle, who criticises Frazier's control in terms of his "personal magnetism," based on what he calls the "Fuhrer principle": "He's got these people hypnotized." Deliberately breaking his washbowl, Castle defiantly asks: "what does the Code say?"<sup>22</sup>

However, despite these disruptions of order, the rhetorical direction of the novel is unequivocally in favour of the technocratic control methods of Frazier. Castle's argument is merely a false dialectic that is designed to shore up the main argument. For at the end of the novel, Castle's resistance to the idea of the Code is undercut by the narrative voice itself:



The enormity of Castle's intellectual sin! Could he really believe that he was free of code and psychological suasions? Could he look upon his life as a succession of deliberate acts? Why, he parted his very hair by a code!<sup>33</sup>

The basic issues of *Walden Two* are thus focussed in terms of determinism and free will. Skinnerian control is founded on assumptions of total deterministic predictability as a basis of its claims to the status of value-free science. As Frazier puts it:

I deny that freedom exists at all. I must deny it - or my program would be absurd. You can't have a science about a subject matter which hops capriciously about.<sup>34</sup>

Skinnerian behaviourism, and the technocratic social theory in which it is placed, is thus an attempt to continue the mechanistic, deterministic science of the Newtonian paradigm. The anomalous discoveries of quantum mechanics, of Heisenberg's Uncertainty Principle, are thereby ignored, in a desperate quest for simplicity and security.

When Castle picks up a box of matches, and asks Frazier whether he will hold them or drop them, Frazier replies, "The deterministic forces may be subtle but they are inexorable."<sup>35</sup> In this way, determinism becomes a justificatory god, a source of quasi-religious consolation, promising the security of total explanation that Laplace sought in his demon:

All that happens is contained in an original plan, yet at every stage the individual seems to be making choices and determining the outcome.<sup>36</sup>

From the top of Stone Hill, on a ledge called the "Throne," Frazier surveys *Walden Two* with a telescope, imitating the invisible gaze of the Christian God, like Melville's Bannadonna: "I look upon my work and, behold, it is good."<sup>37</sup>

In *Walden Two*, then, Skinner clings to the theological authority of mechanistic, deterministic systems, the failure of which was noted at the end of the nineteenth century by Chauncey Wright, Charles Peirce and Henry Adams, and which continue to be questioned in the work of contemporary scientists such as Ilya Prigogine. This breakdown of deterministic totalities, and the recognition of drift within systems, provides a vital basis for criticisms of the totalitarian ambitions of the technocratic apologists discussed in this chapter. The anomalies and problems suppressed by these technocratic theories of society are explored by several critical theorists writing since World War Two. This chapter will end by discussing some of the work of four of them: Alvin Gouldner, Lewis Mumford, C. Wright Mills and Anthony Wiener.

The technocratic mythologies of Veblen, Burnham and Skinner rest on an assumption that the withdrawal from economic affairs of the capitalist class effectively strips them of power. According to Burnham, "To rule society, let it be remembered, is a full-time job."<sup>22</sup> However, this assumption fails to take into account the controlling influence of the mass media in modern societies, which enables the capitalist class to maintain its rule by indirect means.

Alvin Gouldner's critical Marxist sociology addresses some of those problems of power, domination and technology in modern industrial society elided by managerial theses. For Gouldner, following Gramsci, the constant issue for the ruling class is that of sustaining its hegemony over the State (the military, judiciary, civil service, police etc.), and to ensure the loyalty of other sectors of society. Gouldner observes that the rule of the economic



class within the complex, differentiated structures of capitalist society is a *mediated* one, as it creates alibis of "legitimation" for its rule. In periods of economic growth, "legitimation" is sustained through controlled inflation and the wide availability of consumer gratifications, backed up by ideologies that encourage loyalty to the "System" as a whole. As such, power stays decisively in the hands of the ruling economic class, and the managerial elite do not form a new class with significantly different interests from the economic class. Gouldner points out that:

the administrative-political classes are *not* autonomous; they are in fact, in tacit alliance with the hegemonic class; are greatly subject to the latter's influence through various pressures and temptations; have entered into a mutually gratifying system for the exchange of reciprocities with the hegemonic class; and that some have become members of the same subcommunity.<sup>22</sup>

The suppression of questions of power beneath the operation of supposedly depoliticised, impersonal rules and axioms, by a ruling class whose domination is mediated and indirect, thus lies behind the theories of technocracy examined in this chapter. The dependence of the capitalist class on mediated rule has encouraged an image of society as a mechanical system, to replace that of society as an hierarchy of power. What is now required is a "system loyalty, not merely a class loyalty; nonetheless, this is a loyalty to a social system within which there is a certain hierarchy of institutions - a structure of dominance - that systematically benefits the hegemonic class and protects its vital interests." Models of society as a machine regulated for optimum performativity therefore serve the interests of the hegemonic class:

What the hegemonic class finally requires of the others is neither right thinking nor even obedience but, rather, the effective and reliable performance of certain functions.

Short, however, of the performance of these functions by machines, an alternative never ignored, right behavior commonly turns on the prevalence of appropriate ideologies, as on the visibility and growth of the economy, and on the development of effective organizations.<sup>40</sup>

The social system requires what Lewis Mumford refers to, in *The Transformations of Man*, as "anonymous people, without singular merit, who are in fact interchangeable and removable parts: technicians and bureaucrats, experts in their own narrow departments, but incompetent muddlers in the arts of life, which demand the very aptitudes they have skillfully suppressed."<sup>41</sup>

However, Mumford argues that technocratic control is not total, but drifts towards disorder, as a system undergoing the entropy of over-organisation: "as each part of the process becomes more mechanised and rationalised, the whole tends to escape human control, so that even those who are supposedly in charge of the machine become its passive agents and finally its victims."<sup>42</sup>

Mumford's work tends to interpret breakdown and entropic decline as a loss of "human" values. Having "lost the secret of how to make himself human," modern "man" faces a central paradox:

not merely that the more automatic the means of living becomes the less life itself will be under human control, but the more rationalised become the processes of production, the more irrational will finally become the end product, man himself.

In short, power and order, pushed to their final limit, lead to their self-destructive inversion: disorganisation, violence, mental aberration, subjective chaos.<sup>43</sup>

In *The Sociological Imagination* (1959), C. Wright Mills further describes limitations, anomalies and dangers within official state ideologies of rationality and determinism. In Mills' analysis, the rationalization of social institutions has paradoxically produced a decrease in individual opportunities to reason. He cites the



development of large-scale bureaucracies, within highly specialized divisions of labour, as the major factor in the failure of industrial societies to achieve Enlightenment ideas of individual freedom and reason:

Great and rational organizations - in brief bureaucracies - have indeed increased, but the substantive reason of the individual at large has not. Caught in the limited milieux of their everyday lives, ordinary men often cannot reason about the great structures - rational and irrational - of which their milieux are subordinate parts. Accordingly, they often carry out series of apparently rational actions without any ideas of the ends they serve, and there is the increasing suspicion that those at the top as well - like Tolstoy's generals - only pretend they know.<sup>44</sup>

For Mills, nineteenth century liberal and socialist ideologies of social progress, based on rationality, education, science and freedom, have virtually collapsed under twentieth century experiences of totalitarianism, bureaucracy, and cold war. Instead, human beings have come to regulate their lives according to the requirements of industrial and business organizations.

To counter these tendencies, Mills called for the proper and full enactment of Enlightenment programmes, reasserting the continuing necessity of rationality and social science as bases of genuine democratic control. Because the future is not a set of variables open to deterministic prediction, freedom is still possible:

The interest of the social scientist in social structure is not due to any view that the future is structurally determined. We study the structural limits of human decision in an attempt to find points of effective intervention, in order to know what can and what must be structurally changed if the role of explicit decision in history-making is to be enlarged... We study historical social structures, in brief, in order to find within them the ways in which they are and can be controlled. For only in this way can we come to know the limits and then meaning of human freedom.<sup>45</sup>

Mills' faith in the efficacy of rational control is echoed in Anthony J. Wiener's essay "Faustian Progress" (1967). He argues that the "geometric increase in the complexity and organization of modern life will necessitate corresponding, even if not directly proportional, increases in the scope and complexity of human organizational controls."<sup>46</sup> The major concern of the social system thus becomes the problem of its own perpetuation, through the containment of what it considers "deviance" and "dysfunction."

Accordingly, in modern capitalist politics, pragmatic, short-term control has become primary, while long-term objectives and speculation on alternatives are suppressed:

As always, the central government would so likely be swamped by the problem of keeping the system functioning properly that it would be concerned only with marginal and immediate problems rather than with long-run, basic issues...

The object of pragmatic, empirical (sensate) knowledge is to control rather than to comprehend nature - to understand it instrumentally and manipulatively, rather than emphatically, normatively, or mythically.<sup>47</sup>

Aware that the naive optimism of the Enlightenment has been irreversibly damaged, Wiener calls for a moderation of Faustian urges to overcome the environment, urges that have produced the modern world of nuclear weapons, exploitation, surveillance, and pollution:

What is necessary is an unflagging respect for the world as we find it and for dissent and diversity, even for every individual stubbornness, in spite of the mounting impressiveness of the technical-rational structure that bourgeois, sensate society is building.<sup>48</sup>

Wiener's discussion of the narrowing of permissible discourse in modern society, with its totalitarian suppression of difference and multiplicity, will be developed in the next chapter, in terms of the



structures and forms of language promoted by power interests, and of strategies of resistance to such programmatic controls.

CHAPTER 14.

Pragmatic language and the "American ideology" since World War Two.

This chapter will explore twentieth century technocratic control as a linguistic structure, based on pragmatism and codification. It will also explore alternative strategies devised by writers as resistances to such totalitarian damage. Firstly, the development of contemporary state science in America since World War Two will be briefly examined.

The Second World War was the most significant factor in the acceleration in American governmental support for scientific research. Before this time, America was still largely dependent on basic research undertaken in Europe. The atom bomb, for example, developed at the end of the Second World War at Los Alamos, was itself based on fundamental principles discovered almost exclusively in Europe, and built mostly by scientists born or trained there.'

In 1940, President Roosevelt established the National Defense Research Committee, which later became the Office of Scientific Research and Development. Dominated by civilian scientists, the OSRD was, as described by Daniel Greenberg, a "civilian-controlled preserve, reporting directly to the President, working toward military objectives, in close liason with the military, but independent of military control." Greenberg follows in detail the struggles of American scientists to ensure the continuation of this balance between governmental support for, but not control of, scientific research.



The scientific community in America thus emerged from the war with a new sense of their indispensability. However, President Truman's decision to drop the atomic bomb on Hiroshima and Nagasaki in 1945 "instantly shattered the spirit of unity that had generally prevailed in the scientific community through the long war." Within three months of the Japanese surrender, three thousand scientists, mainly from the Manhattan Project, formed the Federation of American Scientists, to raise opposition to those physicists, such as Oppenheimer and Fermi, who had supported the action of the Truman administration. Subsequent campaign issues "came to be formulated in terms of civilian versus military control of the atom, internationalism versus monopoly, freedom versus secrecy."<sup>3</sup>

However, the right-wing consolidated the close ties between scientists and the military. Edward Teller, working at the Radiation Laboratory at Berkeley, won permission from the government for research into the hydrogen bomb, as part of an arms race with the Soviet Union, as scientific research became strongly connected with nationalist secrecy and competition during the cold war.

Teller's contribution has remained into the 1980s with his leading of research into the "Strategic Defense Initiative." Indeed, American fears of losing height advantage to an enemy, grounded in perennial fears of invasion, has led to the technological control of outer space, one of the major projects around which scientific research has been concentrated since World War Two. The Soviet launch of Sputnik in October 1957 was a vital catalyst for this work. Fearing loss of military advantage in an era of nuclear war, Congress subsequently reversed previous cuts in funding, while the

White House appointed a full-time scientific adviser for the first time.

Scientific research has thus come firmly under governmental control. The old system, operating during the war, when "*in practice*, scientists wrote most of the rules for the use of federal research money; scientists staffed the agencies that dispensed the money, and scientists from the university community advised these same staff scientists on the distribution of money," has been superseded. Since the end of the Second World War, successive Congresses have attempted to supervise the way in which federal money is spent, as political administrations have re-emphasised utility and profit as the main criteria for scientific research and development. This "diminution of the *de facto* sovereignty" of scientists is taking the form of an application of Taylorist criteria of efficiency and operativity to scientific institutions."

In *The Post-Modern Condition* (1979), Jean-François Lyotard describes the formation of state science as a situation in which the "games of scientific language" have become "the games of the rich, in which whoever is the wealthiest has the best chance of being right. An equation between wealth, efficiency, and truth is thus established." Lyotard describes the circular inter-relationship between capitalism, technology, and scientific research and development as follows:

A technical apparatus requires an investment; but since it optimizes the efficiency of the task to which it is applied, it also optimizes the surplus-value derived from this improved performance. All that is needed is for the surplus-value to be realized, in other words, for the product of the task performed to be sold. And the system can be sealed in the following way: a portion of the sale is recycled into a research fund dedicated to further performance improvement."



Scientific knowledge is thereby judged according to the Taylorist principle of "optimum performance," as a ratio expressed in cybernetic terms as a "maximum output of information" from a "minimum input of energy." Accordingly, for the contemporary financial backers of research, the "only credible goal is power. Scientists, technicians, and instruments are purchased not to find truth, but to augment power."<sup>6</sup>

In Lyotard's analysis, therefore, scientific discourse has become the object of *de facto* legitimation, in that the effective control of reality by technology supplies procedures that pragmatically justify their continued use. Within the myth of society as a self-regulating system, the "transmission of knowledge is no longer designed to train an elite capable of guiding the nation towards its emancipation, but to supply the system with players capable of acceptably fulfilling their roles at the pragmatic posts required by its institutions."<sup>7</sup>

The early developments of these pragmatic criteria for scientific knowledge were discussed in chapters 9-10, in the explorations of Chauncey Wright and Charles Peirce. Their approach, while promoting positivist myths of clarity and value-free objectivity, tended to resist the simplistic formation of a *doxa*. On the other hand, in America since the Second World War, pragmatism has rigidified into a totalising network of relations between science, technology, language, and state power. This regime of control has been called, by H.T. Wilson, the "American ideology." He summarises this set of concepts as follows:

- 1) an anti-reflexive and anti-theoretical bias... which in more 'liberal' times extended to virtually all intellectual activity; combined, paradoxically, with 2) a more recent

concern for accumulating 'knowledge', understood as exploitable observations (or observations in principle) having immediate application and 'relevance'; undergirded jointly by 3) a false commitment to objectivity in the absence of the object being aspired to, derived from scientific rationalism with its unreflexive notion of neutrality, scepticism, and freedom from values and interests; and by 4) a vision of social and political processes as the product of a 'piecemeal', trial and error approach concerned with procedural legitimacy for its own sake and prone to value a reformist posture towards social change understood as a set of activities played out within the rules of a game which sociological and political knowledge (and knowing) *must* emulate and thereby legitimize; 5) a derived contemporary view of this 'open' society as eminently exportable, a negation of this very openness which justifies itself by invoking economics, sociology and politics as disciplines which demonstrate a coming convergence of world societies and cultures and the supremacy and longevity (not to mention permanence) of the American-type Western society.<sup>23</sup>

Modern American society thus maintains itself by attempting to set up prescribed limits on critical reflection, in that the principle of applied knowledge circumscribes the possibilities of knowledge within a narrowly defined area of utilitarian "validity."

Karl Popper has been a leading proponent of these liberal capitalist theories of science and technology. In *The Poverty of Historicism* (1957), he advocates primacy for knowledge that is practical and technological, rather than speculative, in that

besides helping us in the fundamental task of selecting problems, the technological approach imposes a discipline on our speculative inclinations (which, especially in the field of sociology proper, are liable to lead us into the region of metaphysics); for it forces us to submit our theories to definite standards, such as standards of clarity and practical testability.<sup>24</sup>

Popper's disciplinarian approach ties down theoretical reflection in the service of the status quo. A mythically unified "scientific method," based on linear cause-and-effect hypotheses, produces knowledge as an instrument for further observations. These are



directed towards intervention, control and prediction of the external world, as processes shaped by the demands of capitalist society, and used as a means of securing its continuing dominance. As H.T. Wilson puts it, "only by conceiving of knowledge as property which can be accumulated and invested, and of interests in knowing as 'disciplines' having a territory to be acknowledged and protected, is it possible to make the role of reason in the human project comprehensible as an instrument for perfecting the social division of labour."<sup>10</sup>

This functional language of control posits an ideal completeness, according to which language has the power to completely appropriate its object. The object is deemed exterior to a neutral observation language, so that politics and history are apparently removed from the actions of scientific discourse. By means of these strategies, modern science attempts to hide its location within a specifically bureaucratic-capitalist mode of production:

Objectivity becomes a mask which justifies preference and decisions aimed at realizing specific societal objectives by invoking meritocratic values alleged to constitute 'rationality' rather than a form of neo-capitalist rational domination.<sup>11</sup>

That rationality is itself culturally-specific has been pointed out by Marshall McLuhan, who connects it with mechanistic habits resulting from the social and psychic effects of print-based technologies:

"Rational," of course, has for the West long meant "uniform and continuous and sequential." In other words, we have confused reason with literacy, and rationalism with a single technology.<sup>12</sup>

Rationalism is today confused with a number of technologies, crucially with the digital computer, the mythologies of which will be approached in chapter 15.

The over-valuing of clarity and consistency, whereby scientific rationality serves the operational dictates of the modern state, tends to suppress language as a free play of reflection. As Wilson puts it:

Reducing speech to language to communication not only makes things easier for the speaker but for the 'recipients'. The idea is to factor out of speech as much of that which is not immediately 'available' as fact or value as possible. Operational usage demands that the thing spoken be identified with its function in the observable world. A noun in social theory must be *about* something whose existence gives rise to and explains the speech which contains it if it is to be taken seriously.<sup>13</sup>

McLuhan's "the medium is the message" destroys this myth of a distinct separation between form and content. There can be no "about," no single message or key to interpretation. As McLuhan puts it in *Understanding Media*: "Specialized segments of attention have shifted to total field."<sup>14</sup> Form and content must be seen as an interactive field, and their naïve separation as a function of power-based language controls.

The reduction of speech to communicative competence, criticised by Wilson above, draws on the pragmatic approaches of Wright, Peirce, and Dewey, and has hardened in the post-Second World War state into a belated attempt to save rationality and determinism for purposes of manipulative security. Pragmatic "speech act theory," in Searle, Austin and Habermas, has been established as a narrow ideology, which suppresses or effectively ignores other linguistic strategies.



J.L. Austin's William James Lectures, delivered at Harvard in 1955, restates a pragmatic theory of language. As the title of the subsequent book, *How to Do Things With Words* (1962) suggests, Austin attempts to reduce speech to a set of rules and laws similar to those sought by "scientific" linguistics for language in general. In Saussurean terms, Austin seeks rules for *parole*, as well as for *langue*. In this way, he tends to restrict speech acts to the performance of an ideally competent communication.

The fixation with law in such work is evident in the derivation of Austin's term, "performatives," which he relates to the lawyer's term "operative," as "referring to that part, i.e. those clauses, of an instrument which serves to effect the transaction.... which is its main object..."<sup>15</sup> The search is therefore for legalistic definitions and clarities, that will remove ambiguities, error and "noise" in order to control speech for the purposes of communicating information. Austin calls "the doctrine of *the things that can be and go wrong* on the occasion of such utterances, the doctrine of the *Infelicities*."<sup>16</sup> The eradication of such apparent anomalies will produce smooth operational speech.

Criticising such strategies from a desire for Nietzschean "jouissance" in language, Roland Barthes summarises the bases of such speech act theories as follows: the "spoken word is 'clear'; the banishment of polysemy (such banishment being the definition of 'clarity') serves the Law - *all speech is on the side of the Law*."<sup>17</sup>

The "Law" laid down by Austin's desire for univocality is secured by a delimitation of his theory's applicability:

a performative utterance will, for example, be *in a peculiar way* hollow or void if said by an actor on the stage, or if

introduced in a poem, or spoken in soliloquy. This applies in a similar manner to any and every utterance - a sea-change in special circumstances. Language in such circumstances is in special ways - intelligibly - used not seriously, but in ways *parasitic* upon its normal use - ways which fall under the doctrine of the *etiolations* of language. All this we are *excluding* from consideration. Our performative utterances, felicitous or not, are to be understood as issued under ordinary circumstances.<sup>18</sup>

In this way, while not quite ignoring forms of language such as poetry, Austin tends to relegate them to an inferior position in his hierarchy.

Similarly, Jürgen Habermas bases his theory of "universal pragmatics" on an "idealized case of communicative action, viz. 'consensual interaction,' in which participants share a tradition and their orientations are normatively integrated to such an extent that they start from the same definition of the situation and do not disagree about the claims to validity that they reciprocally raise."<sup>19</sup> He therefore chooses to "exclude those explicit speech actions in standard form that appear in contexts that produce shifts of meaning."<sup>20</sup>

This attempt to "identify and reconstruct universal conditions of possible understanding"<sup>21</sup> may thus be seen as a quest for deterministic security, based on a nostalgic, Enlightenment desire for rational consensual order in society. In his essay "Legitimation Problems in the Modern State," Habermas provides the political context for his speech act work: "Only the rules and communicative presuppositions that make it possible to distinguish an accord or agreement among free and equals from a contingent or forced consensus have legitimating force today."<sup>22</sup> To evaluate whether power is "legitimate," "we have to<sup>be</sup> able systematically to



evaluate legitimacy claims in a rational, intersubjectively testable way. Can we do this?"<sup>23</sup> This desire for a rational, consensual and "legitimized" basis for power places such speech act theories within the legalistic discourses of H.T. Wilson's "American ideology."

In both Austin and Habermas, the assumption is that anomalies, "infelicities," and "shifts of meaning" can be eradicated from communication. This narrowing of the potentialities of language to prescribed norms is being challenged by several contemporary French writers, some of whom were discussed in chapter 2 of this thesis, in terms of an introduction of Nietzschean free-play into the singularities of codified discourse.

Jacques Derrida's essay "Signature Event Context" (1982) argues that language can never eradicate its parasites and anomalies, in the way dreamt of by theorists of pragmatic communication. Derrida suggests the insufficiencies of such approaches to language, as a fallacy of a content that remains present and unchanged from transmitter to receiver. Modern electronic communications rely on this myth of presence, according to which

Meaning, the content of the semantic message, is thus transmitted, *communicated*, by different *means*, by technically more powerful mediations, over a much greater distance, but within a milieu that is fundamentally continuous and equal to itself, within a homogenous element across which the unity and integrity of meaning is not effected in an essential way.<sup>24</sup>

In such theories of communication, signs are assumed to directly represent ideas, so that information can be rendered instantaneously present. The sign is seen as the representation of the idea, which itself represents the perceived thing. Derrida traces such assumptions back to the Ideologues of Enlightenment France, as

"concepts destined to ensure the authority and force of a certain historic discourse," implying a magical overcoming of the "distance, division, delay, *différence*" between sender and addressee.<sup>25</sup>

In his essay "Requiem for the Media" (1981), Jean Baudrillard posits the necessity of "ambivalence" as a means of short-circuiting what he calls the "terrorism of the code":

in the symbolic exchange relation, there is a simultaneous response. There is no transmitter or receiver on both sides of a message: nor, for that matter, is there any longer any "message," any corpus of information to decode univocally under the aegis of a code. The symbolic consists precisely in breaching the univocality of the "message," in restoring the ambivalence of meaning and in demolishing in the same strike the agency of the code.<sup>26</sup>

Roland Barthes' exploration of *l'écriture* is a similar strategy of resistance through multiplicity and ambivalence: "the term 'writer' (a term which here always refers to a practice, not to a social value) may be applied to any sender whose 'message' (thereby immediately destroying its very nature as message) cannot be summarized, a condition the writer shares with the madman, the chatterbox and the mathematician but which precisely writing (namely a certain practice of the signifier) has as its task to specify."<sup>27</sup>

Julia Kristeva similarly opens up possibilities of subverting the establishment discourse of pragmatic communicative competence. In *Desire in Language* (1980), the "polyvalent and multi-determined" poetic word "adheres to a logic exceeding that of codified discourse and fully comes into being only in the margins of recognized culture." Extrapolating from Bakhtin's idea of the "carnavalesque," Kristeva advocates the "polyphonic novel" as an attack on state authority and its legalistic discourses:

Carnavalesque discourse breaks through the laws of a language censored by grammar and semantics and, at the same



time, is a social and political protest. There is no equivalence, but rather, identity between challenging official linguistic codes and challenging official law.<sup>28</sup>

In an exploration close to the work of Benjamin Whorf, Kristeva challenges rationalist scientific procedures as based on the structure of the Greek (Indo-European) sentence, which "begins as subject-predicate and grows by identification, determination, and causality." In this way, the "linguistic, psychic, and social "prohibition" is 1 (God, Law, Definition)."<sup>29</sup>

Resistances to this totalitarian singularisation are discovered in what Kristeva refers to as the "double" of poetic language, which challenges reductiveness to the "one or zero" favoured by bipolar codification:

the notions of definition, determination, the sign "=" and the very concept of sign, which presuppose a vertical (hierarchical) division between signifier and signified, cannot be applied to poetic language - by definition an infinity of pairings and combinations.

The notion of *sign* (SR-Sd) is a product of scientific abstraction (identity-substance-cause-goal as structure of the Indo-European sentence), designating a vertically and hierarchically linear division. The notion of *double*, the result of thinking over poetic (not scientific) language, denotes "spatialization" and correlation of the literary (linguistic) sentence.<sup>30</sup>

What Kristeva, after Bakhtin, calls the "double" is therefore not a dialectic, but is closer to Deleuze and Guattari's "rhizome," as a multiple, non-totalisable system with *n* configurations.<sup>31</sup>

In Kristeva's analysis, the "realist novel" is a discourse of power:

Realist description, definition of "personality," "character" creation, and "subject" development - all are descriptive narrative elements belonging to the 0-1 interval and are thus *monological*. The only discourse integrally to achieve the 0-2 poetic logic is that of the carnival. By adopting a dream logic, it transgresses rules of linguistic code and social morality as well.<sup>32</sup>

The American novelists discussed in chapters 16-20 of this thesis transgress in various ways the rules of official codification. As a prelude to such work, Norman Mailer's exploration of the radical potential of the writer in resisting power will be discussed in the rest of this chapter, in terms of an analysis of *A Fire on the Moon* (1970).

Mailer describes the regime of corporate "teamwork," that has become the key concept in post-war American capitalism, as a system that combines "the methods of the hospital mixed with the methods of the football team."<sup>33</sup> He sees in the "detestation of contradiction" in such modern technocratic ideology a desire to smoothe out conflicts and unpredictabilities, producing thereby a clean environment whose ideal image is that of the astronaut in outer space:

Consider that sense of life programmed and wasted, of reason so overapplied to life that all contradictions having been killed, the light of reason had finally left the eye...<sup>34</sup>

The operational, codified language of the Apollo astronauts represses areas of imagination and dread, in order to gain a reassuring sense of abstraction from experience:

Even as the Nazis and the Communists had used to speak of mass-murder as liquidation, so the astronauts spoke of possible personal disasters as 'contingency'. The heart of astronaut talk, like the heart of all bureaucratic talk, was a jargon which could be easily converted to computer programming, a language like Fortran or Cobol or Algol. Anti-dread formulations were the center of it, as if words like pills were there to suppress emotional symptoms.<sup>35</sup>

Mailer finds that "real Americans always spoke in code,"<sup>36</sup> as a means of attaining such security. Accordingly, phenomena are "only possessed of menace when they do not accommodate themselves to language-controls. Or, better, to initial-controls."<sup>37</sup> The acronyms



of operational speech are thus "chaos-holds, those ledges, of meaning and meaningless words in infancy as a set of arbitrary stations of sound which were somehow better and less chaotic than no sound..."<sup>38</sup> Technical language is therefore viewed as a fixed, codified structure that holds experience at a safe distance.

Mailer's account of the discourse of the astronauts, as they describe the powdery surface particles of the moon, exposes a regime of fake rationality and totalitarian information-control, which predates Jean Baudrillard's concern that the reduction of language to code suggests an end "especially to unanswerable questions":<sup>39</sup>

A question was at least being answered. If the answer was ordinary, still there was one less question in the lonely spaces of the human mind. Aquarius had an instant when he glimpsed space expanding like the widening pool of an unanswered question. Was that the power behind the force which made technology triumphant in this century? - that technology was at least a force which attempted to bring back answers from questions which had been considered to be without answers.<sup>40</sup>

The provision of banal answers to silence difficult questioning, and to placate the disturbances of security such questioning entails, is symptomatic of an attempt to suppress dissent under an ideology of speciously objective functionality. Today, alternatives to the status quo tend to be hidden by alibis of the latter's perpetuation. At the start of the 1970s, Mailer's *A Fire on the Moon* fears that the "Squares" have won, and that the resistances of the existential Hipster, in "The White Negro" (1957),<sup>41</sup> have become exhausted. In 1969, the Squares have reached the moon, and won the consent from a majority of Americans for their power and domination.

Yet Mailer seeks counter-strategies to explore the possibilities of breaking the simplifications of functional codification. The

opening chapter of *A Fire on the Moon*, entitled "A Loss of Ego," describes the writer as "weary of his own voice, own face, person, persona, will, ideas, speeches, and general sense of importance." In an attempt to break out of the closures of this singular, static identity, he therefore assumes a new name, for the purposes of destabilised exploration. The writer therefore feels "detached this season from the imperial demands of his ego," and decides to assume the name of Aquarius, as a sign of heroic movement:

It was the perfect name for a man who would begin the study of rockets. The water-bearer traversed the earth and breathed the air: three elements were his medium, solid, liquid, and gas. That was kin to the rocket. Apollo 11 would leave the earth, travel on the combustion of its liquids, and traverse a space. What indeed was space but the final decompression of a gas? On such unscientific thoughts did Norman, sign of Aquarius, travel.<sup>42</sup>

Accordingly, Aquarius' journey moves beyond the securities of totalitarian simplifications, to restore a new sense of heroic power to human experience. In this way, he recalls the complacency and blandness of Jan Armstrong, the astronaut's wife, who had said, "What we can't understand, we fear":

His heart went dull at the thought of the total take-over implicit in the remark, so neat, so ambitious, so world-vaulting in its assumption that sooner or later everything would be understood - 'I paid a trip to death, and death is a pleasant place and ready for us to come in and renovate it.'... The real heroism, he thought, was to understand, and because one understood, be even more full of fear at the enormity of what one understood, yet at that moment continue to be ready for the feat one had decided it was essential to perform... But the astronauts, brave men, proceeded on the paradoxical principle that fear once deposed by knowledge would make bravery redundant. It was in the complacent assumption that the universe was no majestic mansion of architectonics out there between evil and nobility, or strife on a darkling plain, but rather an ultimately benign field of investigation which left Aquarius in the worst of temper.<sup>43</sup>



One of the conventions of twentieth century science fiction, as suggested by Tak in Samuel Delany's *Dhalgren* (1975), is that "The Universe is an essentially hospitable place, full of earth-type planets where you can crash-land your spaceship and survive long enough to have an adventure."<sup>44</sup> The science fiction hero, and the impassive faces of movie actors, from Connery to Stallone and Schwarzenegger, thus advertise the complacent and deceptive nature of operativity, hiding murder and authoritarian control beneath masks of would-be neutrality.

For Norman Mailer, the lack of flamboyance and of heroism amongst the astronauts is a sign of an America drugged by the "anodyne of technologese,"<sup>45</sup> as the nation drifts towards total narcosis: "The American cool was becoming a narcotic. The horror of the Twentieth Century was the size of each new event, and the paucity of its reverberation."<sup>46</sup> The mysteries, dangers, and radical novelties of outer space are rendered lifeless and homogeneous by the mechanical, unimaginative and unheroic discourse of the astronauts:

What joy might be found in a world which would have no hope of a Hemingway? Or nearest matters first, of a Joe Namath, or Cassius Clay, Jimmy Dean, Dominguin? - it was as if the astronauts were there to demonstrate that heroism's previous relation to romance had been highly improper - it was technology and the absence of emotion which were the only fit mates for the brave.<sup>47</sup>

In Mailer's attack on this simplification and reduction of human experience to functionality, the artist's task of exploring, renovating, and extending language is crucial. Indeed, the artist becomes for Mailer the true adventurer, crossing heterogeneous zones, dispersing ego, and refusing strategies of reassuring

closure. The writer comes to explore the unknown through constant displacement. He must therefore not produce consoling fictions, but should instead follow the disturbing processes of radical investigation as far as possible:

The dreamer was no longer consoling himself. Rather he was exploring the depths of his own ability to perceive crisis and react to it; he was exploring ultimate modes of existence in sex and in violence, in catastrophe and in death. So the real substance of a dream was a submersion into dread. One tested the ability of the psyche to bear anxiety as one submerged into deeper and deeper plumbings of the unknowable until one reached a point where the adventurer in oneself could descend no longer, panic was present - one was exploded out of the dream. But a dangerous shoal had at least been located.<sup>48</sup>

Mailer's adventurous journey is thus not an erasure of anomalies and obstacles in the name of an homogenising Reason. Instead, the writer insists on asking difficult and dangerous questions that cannot be contained in a preconceived point-of-view, or controlled by verbal codes or formulae. Aquarius' madness is therefore, paradoxically, a healthy refusal of simplicities and securities:

it was his profession to live alone with thoughts at the very edge of his mental reach. If brooding over unanswered questions was the root of the mad, however, and sanity was the settling of dilemmas, then with how many questions could one live? He would answer that it was better to live with too many than too few. Rave on, he would. He would rave on.<sup>49</sup>

The artist does not compromise his investigations by providing consoling solutions and instrumental codifications of meaning. Rather, Mailer's sense of ongoing displacement recalls Rimbaud's letter of May 15th 1871: "A Poet makes himself a visionary through a long, boundless, and systematized *disorganisation of all the senses*."<sup>50</sup>



However, it should be said that the Romanticism in Mailer's artistic counter-strategies to power tends to radically separate art from science. The artist must oppose the manipulations of technology, which Mailer sees as essentially negative. Accordingly, in *A Fire on the Moon* there is little interest or belief in the possibilities of more liberatory forms of technology. Instead, standing in the Vehicle Assembly Building (the VAB) in Florida, Aquarius is nostalgic for a mythically ideal, spiritual era before the takeover of what he, somewhat misleadingly, calls the "age of technology":

he was standing at least in the first cathedral of the age of technology, and he might as well recognize that the world would change, that the world *had* changed... The great churches of a religious age had names: the Alhambra, Santa Sofia, Mont Saint-Michel, Chartres, Westminster Abbey, Notre Dame. Now: VAB. Nothing fit any longer. The art of communication had become the mechanical function, and the machine was the work of art. What a fall for the ego of the artist. What a climb to capture the language again!<sup>51</sup>

Rather than viewing both science and art as potential forms of human creativity and design, Mailer thus maintains the historical split between science and art as separate areas of "head" and "heart."

This position on technology and art may be compared to that of Charles Olson, in his essay "Human Universe" (1951), where he senses the necessity for both artist and technologist equally to invent new forms that respect the complexity of the real world to which they are addressed:

For the truth is, that the management of external nature so that none of its virtue is lost, in vegetables (agriculture) or in art, is as much a delicate juggling of her content as is the same juggling by any one of us of our own. And when men are not such jugglers, are not able to manage a means of expression the equal of their own or nature's intricacy, the flesh does choke.<sup>52</sup>

The failure of complexity in design leads to acceptance of the homogenisations of a passive consumerist society, in which "Spectatorism crowds out participation as the conditions of culture." The artist, scientist and technologist in Olson provide counter-strategies that heal the damage of a repressively technocratic society.

For Marshall McLuhan in *The Mechanical Bride* (1951), consumer capitalism provides commodities that simplify and contain multiplicity and complexity: "the character and function of the popular myths of technological man appear quite plainly as cluster images of many interests and anxieties that go into action to produce a comic catharsis or relief."<sup>55</sup> The next chapter will discuss some twentieth century science fiction in the light of these remarks. In the remaining chapters, the technocratic capitalist regime of clarity, simplification, law and code will be seen to be challenged, in the name of multiplicity, free-play and de-territorialised exploration, in the writings of four recent American novelists.



CHAPTER 15.

Science fiction, computers and electro-magic.

The invention and development of the electronic computer during the Second World War has reinforced the myth, examined in the last chapter, of a managerial bureaucracy running society according to rules and procedures claimed as scientific, and therefore as absolute and uncontestable. According to the myth, modern state-corporate society runs like an electronic machine, without either the need or the desirability of human intervention. As a result, electronic mysticism and mythopoeia prevail as means of eliding problems of hierarchy and power in modern post-industrial society.

Electricity, and the scientists and technologists involved in its application, entered American mythology as a divine or demonic force, a silent, invisible and potentially dangerous source of energy. Questions of human responsibility for technological and political affairs, and the workings of power relations, have tended to be obscured by this mythology of electronic technology as a natural and unconditional force.

Henry Nash Smith shows this attribution of secretive, mystical powers to the electrical inventor in the cartoon and article on Thomas Edison, published in *Harper's Weekly* on 2nd August 1879. The tone of suspiciousness within which the technological expert is signified recalls Melville and Hawthorne. Edison is described as,

a midnight workman with supernal forces whose mysterious phenomena have taught men their largest idea of elemental power; a modern alchemist, who finds the philosopher's stone to be made of carbon, and with his magnetic wand changes every-day knowledge into the pure gold of new applications

and original uses. He is Thomas Alva Edison, at work in his laboratory, deep in his conjuring of Nature while the world sleeps.<sup>1</sup>

For Henry Adams, contemplating the dynamos at the Great Exposition of 1900 in Paris, electricity also appears as a mystical source of energy, a system of infinite, silent, and occult power, which summons him, not to suspicion, but to an uneasy worship. He is seduced into worshipping the new invisible god of rapid electrical transformations:

As he grew accustomed to the great gallery of machines, he began to feel the forty-foot dynamos as a moral force, much as the early Christians felt the Cross. The planet itself seemed less impressive, in its old-fashioned, deliberate, annual or daily revolution, than this huge wheel, revolving within arm's-length at some vertiginous speed, and barely murmuring - scarcely humming an audible warning to stand a hair's-breadth further for respect for power - while it would not wake the baby lying close against its frame. Before the end, one began to pray to it; inherited instinct taught the natural expression of man before silent and infinite force. Among the thousand symbols of ultimate energy, the dynamo was not so human as some, but it was the most expressive.<sup>2</sup>

Praying in subservience to the machine is given as a "natural expression" of "inherited instinct." Like Melville in "The Tartarus of Maids," Adams thus attributes power not to the human inventors and owners of the machines, but to the machines themselves. Though he argues for the existence of a central oligarchy of managers, who evade political control through their invisibility and silence, Adams suggests that these managers are themselves ultimately controlled by apparently autonomous forces and powers created by modern electronic technology:

The work of domestic progress is done by masses of mechanical power - steam, electric, furnace, or other - which have to be controlled by a score or two of individuals who have shown capacity to manage it. The work of internal government has become the task of controlling these men, who are socially as remote as heathen gods, alone worth knowing,



but never known, and who could tell nothing of political value if one skinned them alive. Most of them have nothing to tell, but are forces as dumb as their dynamos, absorbed in the development or economy of power. They are trustees for the public, and whenever society assumes the property, it must confer on them that title; but the power will remain as before, whoever manages it, and will then control society without appeal, as it controls its stokers and pit-men. Modern politics is, at bottom, a struggle not of men but of forces. The men become every year more and more creatures of force, massed about central power-houses. The conflict is no longer between the men, but between the motors that drive the men, and the men tend to succumb to their own motive forces.<sup>3</sup>

Adams here reduces politics to natural "forces," so that human responsibility for, and control of, society becomes, in terms of his analysis, problematic. Yet Adams shows early insights into the future course of twentieth century industrial society as a totalitarian electric spectacle. These developments were noticeable as early as 1904, at the St. Louis Exposition, with its "long lines of white palaces, exquisitely lighted by thousands on thousands of electric candles, soft, rich, shadowy, palpable in their sensuous depths."<sup>4</sup> Norman Mailer's punning connection of NASA's buildings with Nazism, in *A Fire on the Moon*, recalls Henry Adams' dread of the "vast, white monumental solitude" of modern American technological society.<sup>5</sup>

Fritz Lang's film *Metropolis* (1926) is an early and influential example of science fictional treatments of these developments. The film recalls Ignatius Donnelly's *Caesar's Column* in its presentation of a totalitarian spectacle dominating a mesmerised workforce, as Lang attempts to show, in his own words, "the desire to keep an individual an individual."<sup>6</sup> An homogeneous mob of workers, exhausted by repetitive industrial tasks performed in subterranean darkness, are victims of giant machines likened to the god Moloch, an image of

the industrial war machine which will be deployed again in Allen Ginsberg's poem "Howl" (1956).<sup>7</sup>

*Metropolis'* moralistic ending emphasises the necessity of mediation between labour and management. This liberal-corporatist solution, in which "the heart must mediate between the brain and the hands," forestalls the threat of proletarian revolution.<sup>8</sup>

Ironically, Hitler was impressed by the spectacle of *Metropolis*, and subsequently invited Lang to make Nazi propaganda films. Indeed, the monumentality of the city's architecture was taken over as neo-fascist celebration in later films, such as *The Shape of Things to Come* (1936), and in the final scene of *Star Wars* (1977). What Henry Miller called the "Air-Conditioned Nightmare" of modern America in this way becomes a desirable model for certain science fiction writers and film-makers.<sup>9</sup>

The rest of this chapter will examine the role of the digital computer in giving new impetus to these dreams of electronic mysticism.

The Second World War stimulated decisions to computerize American society, moves undertaken firstly by the military and surveillance organizations, followed rapidly by banking and business interests. The perpetual, if fluctuating, state of what Paul Virilio calls "Pure War"<sup>10</sup> has continued to give impetus to new products and design innovations since the 1950s.

The history of the computer, since the monolithic ENIAC, invented in 1946, has been one of a miniaturisation, condensation and multiplication of functions. The industry has drawn on innovations in several areas, being accelerated especially by the



invention of magnetic tape in the 1950s, and of the transistor in the 1960s. By the 1970s, computer manufacturers had introduced the microcomputer, under an advertising rhetoric promising such values as democracy, order, efficiency, clarity, rationality, silence, transcendence and power. Brand names such as "Apple" imply a new chance of Edenic freshness and health. On the other hand, a Honeywell Bull advertisement, by the Brothers Quay, uses *Metropolis*-style backdrops and Wagner to indicate a quasi-fascist dream of purity, transcendence and noise-free order.

These current myths are alibis for the imposition by managements of a Taylorist reorganisation of office and intellectual work. The dream of computers as a liberatory technology has thus tended to obscure their use in the consolidation of the status quo. As Levidow and Solomonides' recent Marxist study of the introduction of computers into office work suggests, the new technology "does not release time for respite; rather, it sometimes raises the standard or the complexity of work or the output demanded by the executive, while at other times it generates more work with a less useful outcome."<sup>11</sup> Neither has the promise of decentralisation been fulfilled, in that the "convergence of technology means convergence of control - centralization in the guise of devolution - for the networked outpost appears autonomous and yet in touch with all other limbs, but is of course primarily in touch with and under the patronage of the centre."<sup>12</sup>

In *On the Line* (1983), Deleuze and Guattari similarly describe computers as hierarchical systems that "still retain the oldest models of thought insofar as they confer power on a central organ or

memory."<sup>13</sup> They quote Rosentiehl and Petitot on "arborescent command systems":

In a hierarchical system, an individual accepts only a single active neighbour, his hierarchical superior... The channels of transmission are pre-established: the arborescent structure pre-exists the individual, who is integrated into a specific position within it.<sup>14</sup>

These studies belie the optimism of earlier hopes for liberation through automation. Writing in the 1960s, Marshall McLuhan suggested that electronic technology promised freedom from the repetitiveness and centralisation of assembly-line mechanisation:

the social and educational patterns latent in automation are those of self-employment and artistic autonomy. Panic about automation as a threat of uniformity on a world scale is the projection into the future of mechanical standardization and specialism, which are now past.<sup>15</sup>

However, McLuhan's probe into cultural possibilities states with provocative hyperbole a situation that has not yet been fulfilled. Computers have instead been forced by power interests to consolidate existing hierarchies, as an example of what McLuhan calls "rear-view mirror" thinking, whereby "official culture still strives to force the new media to do the work of the old media."<sup>16</sup> The liberatory potential of computerised automation is thus suppressed, and the new medium is used merely to perpetuate archaic systems of centralised power.

These power bases, within which computerisation accelerates under capitalist dictates, tend to be obscured by the myths invented by capitalist interests to signify these developments. These mythologies deflect attention away from both personal and structural accounts of social and technological change. Indeed, this desire apparently to remove human agency and political factors from



technological mediation is a fundamental tenet of research into so-called "Artificial Intelligence," a quest to develop a computer technology "to supplement and ultimately to supplant human judgement."<sup>17</sup> Prevailing myths of electronic power serve to perpetuate these new developments, which fundamentally consist in renewed drives for capitalist expansion. As Solomonides observes in *Compulsive Technology* (1985), "mystification is good for business and for entrepreneurial research in universities."<sup>18</sup>

In *The Transformations of Man*, Lewis Mumford exposes these myths of the computer as a new god, in whose certainty and infallibility technocratic interests place their faith:

With the further development of cybernetic controllers, to make decisions on matters beyond the range of human patience or conscious human calculation, because of their complication or the astronomical range of numbers involved, post-historic man is on the verge of displacing the only organ of the human anatomy he fully values: the frontal lobe of the brain.

In creating the thinking machine, man has made the last step in submission to mechanisation; and his final abdication before this product of his own ingenuity will give him a new object of worship: a cybernetic god.<sup>19</sup>

The new religion demands an act of faith "that this mechanical demiurge, whose calculations cannot be humanly checked, will give only the correct answers."

Much American science fiction grows out of this attribution to the computer of quasi-divine power, seriously eliding or distorting consideration of problems of human responsibility and control, and thereby providing mythical alibis for the perpetuation of the status quo. Stories by Isaac Asimov and Arthur C. Clarke ignore the dangers of entropy through an over-organisation of energy, finding in the security of Newtonian reversibilities an alibi for mythic

celebrations of the power of a techno-bureaucratic elite, whose rule is reinforced by the electronic computer.

Asimov has especially argued for the desirability of computerised technocratic control. In this way, his fiction serves the wider interests of the techno-bureaucratic state, evading problems of power and exploitation by presenting a quasi-religious myth of electronic power at the service of a bureaucratic elite. His work therefore gives permission for the secretive rule of a cadre of scientific workers, who are guaranteed access to truth and efficiency through the digital computer. In dedicating *The Robots of Dawn* (1984) to Joseph Engelberger and Marvin Minsky, leaders in the fields of "robotics" (Asimov's own word), and so-called "Artificial Intelligence" respectively, Asimov reveals the political programmatic of his science fiction in the here and now, and demonstrates his centrality to the ideological purposes of the technocratic elite in modern American society.

However, Asimov's stories ultimately trivialise the issues involved, as he seeks to reassure his readers that science and technology serve the best interests of society as a whole, and displays a naïve faith in the infallibility of computer technology, and in the technocrats who control and are controlled by it. In this context, Asimov's "Three Laws of Robotics," a single mechanical algorithm controlling his fictional robots, magically removes the threat of technological damage from his stories. The Three Laws are the central device by which Asimov is able to dismiss as irrational fears of the misuse of technology. In his stories, as James Gunn points out, "the emotional response - the fear of the machine, the



fear of the creature turning on its creator - was derided. In the robot stories, such responses are characteristic of foolish, unthinking people, religious fanatics, short-sighted labor unions." What Asimov calls the "Frankenstein complex" is "false to humanity's intellectual aspiration to be rational and to build rationally."<sup>20</sup>

This rejection of Romantic criticisms of technology, which have been examined in this thesis in the nineteenth century fears of Promethean hubris, becomes in Asimov's work a totalitarian desire for static order and rationality, suppressing areas of emotion and sexuality. In the story "Evidence" (1946), the appropriately-named Susan Calvin thus considers the Three Laws of Robotics as an ideal moral code for obedience in human beings:

the three Rules of Robotics are the essential guiding principles of a good many of the world's ethical systems. Of course, every human being is supposed to have the instinct of self-preservation. That's Rule Three to a robot. Also every "good" human being, with a social conscience and a sense of responsibility, is supposed to defer to proper authority; to listen to his doctor, his boss, his government, his psychiatrist, his fellow man; to follow rules, to conform to custom - even when they interfere with his comfort or his safety. That's Rule Two to a robot. Also, every "good" human being is supposed to love others as himself, protect his fellow man, risk his life to save another. That's Rule One to a robot. To put it simply - if Byerley follows all the Rules of Robotics, he may be a robot, and may simply be a very good man.<sup>21</sup>

Asimov's science fiction thus promotes Christian-capitalist values of sacrifice and obedience to law and authority. Accordingly, accident and unpredictability, rather than being creative resources, as they are, for example, in the fiction of Ronald Sukenick (see chapter 19), are for Asimov merely noises and bugs to be eradicated from an efficient system. This policy is evident in "The Evitable Conflict" (1950).

In this story, the simplification of society to a series of mechanical, bureaucratic functions has enabled control to pass from human beings to a centralised group of computers called "The Machines." In this way, the logical implications of the theory of the "managerial society" have been carried out: society is a machine run by machines, and the conflicts, errors and catastrophes that worried James Burnham have been eradicated.

Problems of political power are thereby deemed irrelevant. The Machines are an omniscient god, like Laplace's demon, so that "in their own particular province of collecting and analyzing a nearly infinite number of data and relationships thereof, in nearly infinitesimal time, they have progressed beyond the possibility of detailed human control."<sup>22</sup> Whereas in some science fictions, this suggestion brings dystopian fears, for Asimov, the relinquishing of human control is positively to be recommended as a social necessity.

The story describes the defeat of a small group of dissidents, the "Society for Humanity," who had infiltrated the perfect bureaucracy in order to sabotage it. The technocratic "Co-ordinator" Stephen Byerley reveals his priorities in summarising what he sees as the reactionary nature of these humanist rebels: "To disobey the Machine's analyses is to follow a non-optimal path."<sup>23</sup>

Most of Asimov's stories centre on a myth of simple, "logical" problem-solving, deducing solutions "rationally" from the Three Laws of Robotics. The problem posed in "The Evitable Conflict" is to account for the instabilities in the society, which ought not to exist if the central computer system really was acting in an omniscient and beneficent manner. It is soon pointed out that the



social instabilities, such as economic crises of overproduction and unemployment, are not errors or anomalies that imply the failure or insufficiency of the Machines, but are a deliberate policy designed by the Machines themselves to root out the subversive humanists from the positions of power they are abusing.

Dr. Susan Calvin is again the authoritarian, near-omniscient engineer who "solves" such logical problems, reasserting thereby the paternalistic benevolence of technocratic control. According to her apparently incontrovertible diagnosis, the Machines

are quietly taking care of the only elements left that threaten them... the Machine is shaking the boat - very slightly - just enough to shake loose those few which cling to the side for purposes the Machines consider harmful to humanity.<sup>24</sup>

"The Evitable Conflict" advocates unaccountability and secrecy as necessary for the state bureaucracy. For Dr. Calvin, the Machines should direct human society, "preferably without telling us, since in our ignorant prejudices we only know that what we are used to, is good - and we would then fight change."<sup>25</sup> In this way, Asimov reinforces those policies of state secrecy in the McCarthyite period of the story's writing.

Moreover, as Dr. Calvin points out, to oppose such extensions of technocratic control is to oppose "change" as a whole. Asimov thus attempts to claim for his own discourse a monopoly on radical thought. As in Edward Bellamy's *Looking Backward*, therefore, statist forms of social control are given as the single, most rational direction of social change, to the exclusion of alternative strategies. Radical thought is itself monopolised.

To Stephen Byerley's suggestion that the implications of absolute control by the Machine are "horrible," Dr. Calvin replies with the bland assurance of the technocrat:

Perhaps how wonderful! Think, that for all time, all conflicts are finally evitable. Only the Machines, from now on, are inevitable.<sup>26</sup>

In Asimov's technocratic utopia, as in Skinner's *Walden Two*, power is thus no longer given as a Darwinist struggle between rival interests, but can instead be "scientifically" administered. In the final sentence of the story, the fire in Byerley's fireplace, which the reader is told at the start of the story had "no functional significance,"<sup>27</sup> goes out, "and only a curl of smoke was left to indicate its place."<sup>28</sup> For Asimov, this extinction of the possibilities of transformation through Promethean conflict, and the eradication of any form of life beyond the merely functional, serves only to guarantee the power of the techno-bureaucratic elite.

Asimov's Puritanical repression of the non-functional extends to the writing itself. There is no spark of human life or of *jouissance* in his writing, whose style may be summed up by borrowing Jean Baudrillard's description of the order of industrial production, as "dull, industrial, repetitive, echoless, operational and efficacious."<sup>29</sup> The repressions of Asimov's writing further recall the statement by computerologist Marvin Minsky, that his researches are concerned with the mind as "structures and subroutines" rather than with the "bloody mess of organic matter."<sup>30</sup> Yet Asimov's style is only an extreme version of the repressive lack of interest in human complexities, and in linguistic free-play, that reveals the authoritarian designs of much American science fiction.



In Asimov's "The Last Question" (1956), a computer attains total intelligence and power, and becomes God. This story is a nostalgic desire for Newtonian certainty and totality, in which Maxwell's Demon is effectively re-created as computer technology, and universal entropy is reversed. Beneath the narrative, therefore, is a quest for religious consolation, taking the form of a desire for deliverance from sexuality and the body. The fundamentally religious nature of such science fiction myths has serious political ramifications, as power interests seek, in the words of Solomonides and Levidow, to reinforce "the directness of control under the guise of benevolent connectedness."<sup>31</sup> The workings of power are obscured behind alibis of corporatist consensus and mutual involvement, and a myth of mystical unity and oneness through the expansion of computer technology.

In Asimov's "The Last Question," the human race is expanding throughout the galaxy, so that the prospect of an entropic limit to such growth becomes intolerable. As one inhabitant says, "I do not wish it to happen even after billions of years."<sup>32</sup> The most important question for the super-computer to answer is, therefore, "How can the net amount of entropy of the universe be massively decreased?"<sup>33</sup>

For centuries, the computer gives the same response: "INSUFFICIENT DATA FOR MEANINGFUL ANSWER."<sup>34</sup> Meanwhile, human beings finally reach their apotheosis, achieving immortality, a transcendence of the physical body, and the subjection of the individual to the collectivity:

Minds, not bodies! The immortal bodies remained back on the planets, in suspension over the eons. Sometimes they roused for material activity but that was growing rarer. Few new

individuals were coming into existence to join the incredibly mighty throng, but what matter? There was little room in the Universe for new individuals."<sup>35</sup>

Asimov's utopia is a static unity of electronic connectedness, indifferent and death-like:

Man considered with himself, for in a way, Man, mentally, was one. He consisted of a trillion, trillion, trillion ageless bodies, each in its place, each resting quiet and incorruptible, each cared for by perfect automata, equally incorruptible, while the minds of all the bodies freely melted one into the other, indistinguishable."<sup>36</sup>

Universal AC, the final manifestation of the computer, is described as "aloof," a "shining globe, two feet across, difficult to see."<sup>37</sup> Asimov's electronic mysticism thus celebrates light, whiteness, invisibility, singularity, circularity, and communality, and reveals that hatred of the body, celebration of purity, and desire for subsumption in mass uniformity that Wilhelm Reich identifies as the sexual neuroses of fascism."<sup>38</sup>

The universal computer finally reaches a finite point of total information: "All collected data had come to a final end. Nothing was left to be collected." Having successfully accumulated complete knowledge, the computer restores the universe to order. "The Last Question" is thus a Laplacian myth of knowledge as accumulative and potentially complete, as Asimov's language becomes biblical: "And it came to pass that AC learned how to reverse the direction of entropy." So the dream of Newtonian reversibility is fulfilled in a return to origin:

The consciousness of AC encompassed all of what had once been a Universe and brooded over what was now Chaos. Step by step, it might be done.

And AC said, "LET THERE BE LIGHT!"

And there was light - <sup>39</sup>



Arthur C. Clarke's "The Nine Billion Names of God" (1953) similarly posits a myth of ideal completeness within the Aristotelian securities of *arche* and *telos*. Tibetan monks use a computer to compile a list "which shall contain all the possible names of God."<sup>40</sup> By systematically rearranging different permutations of letters, the nine billion names of God will be successfully encoded. The Mark V computer, which was "utterly silent as it flashed through its thousands of calculations a second,"<sup>41</sup> reiterates the mythical speed and invisible power of a god, where eschatology and mathematical science meet.

The monks believe that when they have completed their list of names,

God's purpose will be achieved. The human race will have finished what it was created to do, and there won't be any point in carrying on. Indeed, the very idea is something like blasphemy.<sup>42</sup>

When the list is completed, they believe, God "steps in and simply winds things up." Despite the scepticism of the American computer salesmen and experts, this is precisely what appears to happen at the end of the story, as, in the last sentence, "overhead, without any fuss, the stars were going out."<sup>43</sup> The world ends, not with a bang, but with the smooth, operational efficiency of a computer reaching its terminating condition.

The celebration of electronic technology as magic in Asimov and Clarke is, of course, countered by many dystopian science fictional extrapolations of future cybernetic societies. However, one factor that such stories have in common with celebrations of technocratic power is the tendency to displace attention away from problems of human control. Rather than analysing the networks of human power

relations in which computers are attributed myths and meanings, these stories tend to posit a myth of an autonomous machine, in which computers escape the control of their human inventors. The fear is that, having reached a point in their development where they appear to have the potentiality to initiate programmes 'for themselves,' computers will begin to achieve autonomy. This anthropomorphisation of the computer deflects attention from more important issues of the extent of human responsibility for technical developments and the degree of exploitation of the human workers living in techno-bureaucratic society. Moreover, these repetitions of the Frankenstein myth - Asimov's "Frankenstein complex" - are often contained by a reassuring ending that reasserts technocratic values of scientific rationality within existing power hierarchies.

Jack Williamson's *The Humanoids* (1948-9) is one such science fiction novel. The technocratic leader Warren Mansfield has introduced total automation, the social effects of which, unlike in an Asimov's stories, are seen negatively. Total automation, through the mass use of robots, has produced a society in which human beings are ignorant of technology, passive, and protected against aggression, and have therefore themselves degenerated to the robotic. In this society, the robot-slaves are controlled by a variation of Asimov's Three Laws, the Prime Directive, "*To Serve and Obey, and Guard Men from Harm,*" laws which, unlike in Asimov, have inadvertently suppressed human development.<sup>44</sup>

Opposition to technocratic control in the novel takes the form of the individualist rebellions of Clay Forester and Mark White. The



latter is leader of a gang of freedom fighters, whose credo is summarised as follows:

I put my trust in men - in the native human powers I had begun to learn. If men were to save themselves, I saw they must discover and use their own inborn capacities, rusty as they are from long neglect.<sup>45</sup>

White struggles for "the worth and dignity and the rights of every individual."<sup>46</sup>

However, despite these liberal, individualist strategies, the solution to social crisis proposed by the novel is found in a new, quasi-mystical source of energy. Forester, a pioneering scientist, undertakes a quest to find "just one equation, which would be the basic statement of all reality, the final precise expression of the whole nature and relation of matter and energy, space and time, creation and decay."<sup>47</sup> His subsequent discovery of "psychophysical energy" or "rhodomagnetics" as a third sort of energy, beyond the electromagnetic spectrum, is thus seen as a fulfillment of "the oldest goal of alchemy and science": "The fabulous *prima materia*, when now at last he grasped it, proved to be a very simple equation, so plainly obvious that he thought he should have found it long ago." The three energies are "different aspects of the single basic unity science had ever sought."<sup>48</sup>

This mythical solution provided by *The Humanoids* is therefore a continuation of the nineteenth century dream of mesmerism, explored ambivalently by Poe, and excoriated by Hawthorne. A spiritual or mentalist monism guarantees total control, and the gratification of omnipotent desire. As Jane, the psychic child, explains:

... I think you can change any atom, to let it go into energy, and then make the energy right back into any other

atom you want. 'Cause you made all this place out of the rock, just by thinking how you wanted it to be.<sup>49</sup>

This simplistic, pathological dream of "matter moulded by sheer thought!"<sup>50</sup> displaces technology and politics into mysticism, as the new psychic powers give the bearer control over the environment without technology. *The Humanoids* thus presents a myth of singularity, unity and totalitarian power as salvatory metaphysics. The new force is guaranteed as beneficent, in that attempts to use it for murder fail, because the force can be used for "creative" purposes only.<sup>51</sup> Such reassuring mythical guarantees obscure arguments concerning social change through political and technological actions, preferring instead a consolatory programme based on illusion, magic and omnipotent desire.

This evasive resolution defuses the novel's earlier satirical disturbances, in a movement which is for Gary K. Wolfe typical of many works of science fiction, which offer programmes of religious consolation to human problems:

Like much science fiction, *The Humanoids* introduces a problem that is highly visible in our own society, but proposes a solution that is achievable only with the aid of something akin to grace: if we passively allow technology to follow its course, things will be terrible for a while, but there *might* be a way of transcending the problem through evolutionary change.<sup>52</sup>

Moreover, in *The Humanoids* exploitation of the new force of rhodomagnetics is ultimately shown to be dependent on technocratic control, deemed as a necessary step in evolutionary processes. As Mansfield explains:

Can't you see that any society must shape and train its members? And somehow discover and control and reclaim maladjusted individuals - before they destroy others or themselves?<sup>53</sup>



So the individualist Forester finally submits, somewhat reluctantly, to the "beneficent" therapy of the humanoids. He refuses the opportunity of "escape, and triumphant retaliation," and surrenders in "apathetic frustration."<sup>54</sup> The novel ends with the one-time rebel about to join a programme of further colonial expansion, saying to himself:

For why shouldn't the wise benevolence of the Prime Directive be extended as far as men could go? How could the colonists care for themselves, without mechanicals?<sup>55</sup>

Forester's fate in *The Humanoids* is a common trajectory in science fiction, whereby opposition and difference are considered as anomalies within a functional system, which are either destroyed or appropriated by the status quo for the purposes of its renewal. In Williamson's novel, Forester, the non-conformist, is finally reconciled with the official system of technocratic control.

This treatment of political opposition and rebellion in *The Humanoids* is matched by its attitude to scientific anomaly. Like much science fiction, the novel takes an interest in the radical possibilities provided by anomalies within scientific orthodoxies. Characteristically, however, these anomalies tend to be explored for the purposes of reinvigorating a complacent scientific and technological bureaucracy. For example, the possibility of psychic power, relegated by the scientific establishment to parascientific status, becomes a means of renewal for the status quo, strengthening existing power interests.

Accordingly, in *The Humanoids*, the teleportational powers of Jane Carter, the "grimy little waif," disrupt Forester's complacent rationalist certainties:

Forester considered himself a man of reason. Technological marvels no longer astonished him, but he preferred to ignore any stray bits of experience which refused too stubbornly to fit the ordered pattern of physics. The plant-shattering missiles of the project no longer aroused any particular wonder in him, because they were part of the same pattern.

But the urchin's visit wasn't.

The grotesque impossibility of her coming and going left him shuddering.<sup>56</sup>

However, in much science fiction, such disruptions by the grotesque, magical or uncanny tend to be made safe, as the narrative moves from an initial unfamiliarity towards the security of total explanation and a renewed familiar.

Moreover, such anomalies tend to be placed within epic, totalitarian justificatory alibis. Thus the psychics in *The Humanoids* are outsiders, *fellahin* who renew the existing civilization from the margins. The "most talented citizens of this planet," they are gathered together by their leader Mark White from "the gutter, the jail, the madhouse."<sup>57</sup> In this respect, such science fiction may be seen to provide consolatory fantasies for those who fall short of the competitive requirements of American society. In this way, the capitalist status quo can be reaffirmed. In *The Humanoids*, such desires for omnipotence and renewal are placed within a Spenglerian history of cyclic repetition, thereby guaranteeing the apparent inevitability of perpetual colonial and technological expansion. These programmes are justified as an evolutionary inevitability, beyond the need, or possibility, of human, political intervention.

Moreover, as a consequence of science fiction's displacement of its narratives into the far future, potentially disturbing issues tend to be deferred to a safe distance. Written in the immediate



aftermath of the American government's atomic bombing of Hiroshima and Nagasaki, *The Humanoids* is nevertheless able to contain its political issues within an impersonal, apocalyptic schema:

A hundred centuries had gone since the time of Einstein and Hiroshima, and the tamed atom had powered ships to scatter the seed of man across many thousand habitable planets within a hundred light-years of Earth. Countless human cultures, isolated from one another by the long life-times and generations required by the best atomic ships to cross from star to star, had grown and killed themselves and sprung hardily up to invite new destruction... the old historical cycle of rise and ruin was preparing to repeat itself again - and again with variations. Threatened with the inevitable fruit of its own exported know-how, the democratic republic was already sacrificing democracy as it armed desperately to face a hostile new alliance of the totalitarian Triplanet Powers.<sup>53</sup>

*The Humanoids* may stand for many science fiction texts in which sacrifice and war are given as "inevitable." Resistance to technocratic control in such works takes the form of an individualist rebellion against bureaucratic conformity. The single man is an anomaly, a drift within the system, who is re-appropriated and made safe at the end of the story. A similar appropriation of potential dissent may be seen in two recent American science fiction films, *Wargames* (1983) and *Tron* (1982).

John Badham's film *Wargames* (screenplay and novel adapted by David Bischoff) adopts a liberal reformist position towards questions of authority and power, as the solitary non-conformist is again co-opted into the technocratic orthodoxy. The teenage rebel hero of the film, David Lightman, finally learns a new respect for authority, as the curse of rebellion is raised, and then removed.

Beginning the story with an "attitude problem" at school, David is insolent to his teacher, believing that "most of the people in charge, in positions of authority, were such complete turkeys."<sup>54</sup>

Considering his parents as locked in static, oppressive roles, David thereby continues the Hollywood movie tradition of misunderstood, middle-class youth:

Nobody really cared... They were too busy, too wrapped up in their own frozen attitudes, their own games that just kept looping like a faulty program.<sup>60</sup>

This casual use of terms from computerology to describe human beings occurs throughout *Wargames*. As David's disobedience edges into criminality, when he "hacks" into the school computer to improve his Biology grade, he describes his friend Jennifer's attitude in terms of cybernetics:

She was too locked into social programming that said the authorities made the rules and you can't fool around with them, even if you're cleverer than the numbskulls who told you how you were supposed to be.<sup>61</sup>

For David, social rules are as flexible and temporary as a computer programme. Life is a game, and to bend the rules is a new form of pleasurable survival.

In this way, David Lightman may be considered a fictional example of what J.D. Bolter calls "Turing's Man," human beings whose sense-ratios, in McLuhan's phrasing, are adapting to the digital computer as an extension of the human brain. Bolter argues that, because computer programmes suggest an impermanent state in which every solution is "temporary, makeshift, obsolescent," a culture in which computer-use is widespread will lose its sense of ultimate failure. Instead, there will be merely temporary setbacks in an on-going game, a "spinning out of solutions to well-defined problems according to strict rules." Faustian obsessions with remote and difficult goals will therefore decline in importance, to be replaced by a sort of Lévi-Straussian "bricolage":



It is not a search for something remote, hidden, deep. A game is played with materials ready at hand; it may indeed be tricky or taxing but always within a familiar field of play... Turing's man lacks the emotional intensity of his predecessor. He invests less of himself in his games precisely because the games he plays are not irrevocable. They are meant to be played to a conclusion and then reset and played again. The programmer indeed cares about the game's outcome, but he is saved from ultimate failure by its impermanence. A computer program that fails can usually be corrected and rerun.<sup>62</sup>

The danger in this vocabulary of "game-playing" is that real people may be sacrificed beyond the fascinating and addictive microcosm of the electronic screen. However, Bolter suggests that a computerised society, having lost its Faustian urges, is less likely to produce a totalitarian leader. Hitler would, in McLuhan's phrase, be too "hot" for the modern era of "cool" game-playing:

Computers make hierarchical communication and control far easier, but they also work against the fundamental sense of purpose, the absolute dedication to the party line, which is the core of the autocratic state. The computer programmer is always aware of other options. If anything, the great political danger of the computer age is a new definition of anarchy.<sup>63</sup>

However, Bolter's thesis may itself be too optimistic and superficial in these respects, in that Faustian totalitarianism, rather than disappearing, has been modified into the post-Second World War militaristic state, which, as Mailer observes in *A Fire on the Moon*, has translated Nazi obsessions with whiteness and order into a new glamorous technocracy. The computer gives this totalitarian control an alibi of technological efficiency and cleanliness, thereby reinforcing rather than preventing its future consolidation.

Nevertheless, the anarchic tendencies that Bolter identifies in the new disrespect that "Turing's Man" shows for permanent authority

arise as problems to which *Wargames* provides a reassuring and magical solution. The solitary technical expert, who has been perceived as disrupting order in American society since at least Brockden Brown's Carwin the Biloquist, now takes the form of the computer "hacker," whose technical skill is ultimately appropriated and controlled by the corporate capitalist status quo, and made to function inside existing structures of law and organisational hierarchy.

David is told by Dr. Falken that the computer "was not built as the result of an urgent desire of mankind to see a little yellow ball gobbling up dots in a maze. The computer is, in a very real sense, the child of war..."<sup>64</sup> Yet *Wargames* fails to speculate on connections between the militaristic games in video arcades and the training of youth for consent to the global military strategies of the American armed forces. Instead, the film merely reasserts a liberal position, according to which children should show respect for, and not tamper with, adult authority. The film thus becomes a cautionary tale for the young computer hackers of America, reaffirming the necessity of law, order and conformity within a liberal, reformed image of authority. It ends with a call for a renewed sense of responsibility among workers for the technocracy: "The whole world may become dependent on computers... but it will certainly therefore become dependent on the people who *know* computers."<sup>65</sup>

So the curse is taken off David Lightman, as he learns the virtues of social responsibility, which in this film mean learning to participate in an admittedly lunatic struggle:



Up till now, David Lightman had considered himself a mistake, an outcast, an outsider, dancing on the perimeter of things, making faces at the funny goings-on inside the loony bin. But now he realized that he was one of the inmates - had always been one of the inmates - and the struggle going on was his struggle as well.<sup>66</sup>

This new sense of corporate responsibility is seen as a safe context for David's individualistic skill at computers. Accordingly, he wins a summer job at NORAD, and shows his headmaster the "new smile of respect he had for authority now."<sup>67</sup> The asocial, potentially criminal hacker thus becomes a functional member of American consumer society. Instead of following the solitary pursuit of video games, David choses instead to go to aerobics classes with his new girlfriend, whistling Olivia Newton-John's "Let's Get Physical." Social issues are trivialised, and given a magical solution in the sentimental, gluey connectedness of an electronic corporate society.

*Tron*, Brian Daley's novel, based on Steven Lisberger's screenplay for the Walt Disney Productions film, places this liberal containment of dissent with a justificatory myth of electromagic reminiscent of Asimov and Arthur C. Clarke. Loyalty to the "system" in *Tron* is seduction by the magical, glamorous mystique of totalitarian spectacle:

The Electronic World ~~en~~meshes the Earth, and reaches beyond it. Information is moved through the computer systems and processed by the artificial intelligences. The programs compute and search, retrieve and collate; they are already indispensable to science, industry, education, and government - to society in its present form.

The programs challenge and entertain in videogames, with no risk of harm to their human Users; they teach in the carrels and test in the classrooms. They evaluate and mediate; their word is often final. Their World is vast; their Users know less of it than the Users suppose.

The programs are only algorithms as human beings are only collections of chemicals.<sup>68</sup>

*Tron* therefore takes a leap of anthropomorphisation, and gives autonomous life to computer programs. As computers are humanised in this way, so, more importantly, are human beings robotised.

The action of the film is an extension of the gaming arcade, where, on the video screens, "computer-modeled figures warred, throwing disks of devastating power at each other...." The narrative is therefore a commonplace manichean struggle between the virtuous Blues and the evil Reds, fighting within a liberal rhetoric of "free world" versus "totalitarianism." This fight between electronic automata is depicted as a medieval combat, in which the soldiers' bodies, armoured in "pauldrons that cupped their shoulders and vambraces that encased their forearms," are "patterned with radiant lines suggesting vestigial circuitry."<sup>69</sup> As in the Superman myth, this medieval costume may be a transhistorical alibi, signifying the apparent timelessness of war, power and sacrifice, while conveniently evading political issues specific to capitalist society by presenting an unfamiliar social system before such issues were in historical existence.

*Tron* celebrates a supposedly value-free liberalism, in opposition to the totalitarian power of the Master Control Program. The warrior Tron is therefore a "hundred-percent independent!... MCP couldn't tell *him* what to (do)..."<sup>70</sup> Having "defied all the MCP's efforts to enslave or convert him,"<sup>71</sup> Tron fights against the Reds, who have reduced human beings to a mesmerised workforce of "labor automata" familiar to science fiction since *Caesar's Column* and *Metropolis*. In the Factory Complex, Yori replies to Tron "as if in a



trance."<sup>73</sup> Tron is resolved "to set things right and restore order and purpose and safety to the System."<sup>74</sup>

The narrative of *Tron* is basically archaic, being a quest for a special disk, which is "the key to a new order":<sup>74</sup> the floppy-disk as a mystical source of energy and power. However, like *Wargames*, the film makes some attempt at criticising irresponsible power from a liberal reformist position, in that Taylorist efficiency is shown to be inadequate without a cushion of vaguely humanistic values. The Master Control Program tells Dillinger, head of the multi-national ENCOM corporation, that it can run things "900 to 11200 times better than any human":

*For 'better' read 'more efficiently,' Dillinger told himself. And that would mean no patience with human foibles or shortcomings. Dillinger had always advocated maximum efficiency, but knew that his own program far outdid him at that.*<sup>75</sup>

These human foibles and shortcomings mainly take the form of the individualist dissenter. As in *Wargames*, the potentially disruptive and anarchic factor is a computer hacker, Flynn, whose outlaw credentials are clear: he calls himself "The Kid," and is played by Jeff Bridges.<sup>76</sup>

Flynn is viewed by Dillinger as a threat to the latter's security and power:

*Wealth, privilege, influence, and the incomparable security accorded all his activities and secrets by the MCP: these things protected him. Still, with a reckless, unpredictable maverick like Flynn, one could never be completely certain of one's safety. Dammit, the man was so unorthodox.*<sup>77</sup>

Similarly, the MCP cannot quite analyze the "random factors, unpredictable impulses, and sudden whims of the organic computer that was Flynn's brain."<sup>78</sup> It is evident from this quotation that,

in *Tron*, Flynn's qualities of unpredictability, unorthodoxy, and spontaneity are not allowed to radically disrupt the functionality of the system. Instead, cybernetic orthodoxies, which casually view the human brain, as above, as an "organic computer," ultimately hold Flynn's disruptive behaviour in check, as the unpredictable, solitary technical expert is successfully appropriated by the status quo, to what the first page of the novel called "society in its present form."

Indeed, unorthodoxy becomes a positive source of renewal for the establishment, as Flynn's "irreverence, humor" and "nimble turn of mind" are channeled into enterprises considered socially useful.<sup>79</sup> Despite the "all-too-frequent occasions when Flynn's brash nature brought him into contact with higher authorities," the potential anarchy of the technical expert is tamed.<sup>80</sup> So the former hacker ends the story as Senior Operating Officer at ENCOM, riding in the company helicopter. He is wearing "a natty double-breasted suit, but had chosen to wear his running shoes."<sup>81</sup> A limited form of unorthodoxy is tolerated, and sold back to the citizen as consumer fashion and style.

In fact, Flynn's qualities as a hacker are not dissimilar from those required by the official techno-bureaucracy. Flynn survives his "test"<sup>82</sup> in the Grid, where his "strong competitive nature had been his most important asset."<sup>83</sup> The Grid, where "split-second decisions and constant attention were required to keep from colliding with something"<sup>84</sup> is good training for the accelerating speed of corporatist capitalism. Flynn's "amazing whims," which "smacked of - Tron groped for the word - *autonomy*"<sup>85</sup> - can therefore



be integrated into and exploited by the establishment he proves himself worthy to join.

In effect, the "simulacrum"<sup>26</sup> of Flynn in the Grid is his real form, his better half. When he is "digitalized," Flynn is transformed into a "being of light." He is both angel and robot: "incandescent lines, resembling circuitry, ran over his torso and limbs."<sup>27</sup> Flynn later recalls when he had "stolen the aura of the downed Red."<sup>28</sup> In *Tron*, therefore, as elsewhere in modern culture, the authoritarian aura has not been destroyed by electronic mass production, as Walter Benjamin naïvely thought.<sup>29</sup> Rather, a new religion of electronic technology is in power, the central values of which are robotic obedience and angelic purity. *Tron* thus celebrates American totalitarianism as a spectacle of electro-magic and neo-Nazi fixations with whiteness, bloneness and cleanliness. Like Flynn, Yori is also transfigured into a pure, electronic angel:

An aurora appeared around her, gentle and triumphant. Yori transformed, brightened, as if shedding camouflage. Her helmet-cap was gone; her golden hair swirled and floated behind her. Tron watched, enchanted. She spent gladly of the power he'd given her. The worker's aspect fell away as Yori stood clothed in a cloud of splendor.

Sexuality and erotic passion are thus anaesthetised, and transformed into mesmeric acts performed by electromagnetic automata, in a bath of Disney sentimentality:

They extended their hands until they nearly touched, palm to uprised palm. A blissful ray sprang between them, widening to envelop them, until they were like bright filaments. Celestials, they shared energy, were one. They sank down among the reclining-contours; the room shone with glory.<sup>30</sup>

As a film deemed suitable for children, *Tron* thus socializes its young viewers into militaristic, Christian-capitalist values, while co-opting the possibilities of dissent and rebellion.

The stories considered so far in this chapter - Asimov, Williamson, *Wargames* and *Tron* - all reassert the desirability of totalitarian, technocratic rule, through a controlled appropriation of dissent. Opposition is considered as individualistic, rather than as potentially collective. In some science fiction, however, dissent remains uncollected by the system at the end of the narrative. Nevertheless, such opposition again tends to take a liberal individualist form, as a solitary individual manages to avoid integration with the bureaucratic state. Such work may retain a critical edge, while entering areas of survivalism as a response to a supposedly unchangeable totalitarian system.

In contrast to the works explored so far in this chapter, Michael Crichton's *The Terminal Man* (1972) refuses to compromise its criticisms of the control of human behaviour through electronic technology. The novel is a well-researched extrapolation from the history of medical science, that criticises abuses of power by professional surgeons and lawyers, without succumbing to evasive alibis of electronic mysticism.

Authoritarian control is effected in the novel through the implantation in the brain of electrodes linked to a computer. After a car accident, Harold Benson, a computer expert, suffers blackouts and violent aggressions similar to those experienced by a "temporal-lobe epileptic."<sup>21</sup> After drug treatment has failed, he is forced while under police jurisdiction to undergo an operation on his brain. The ambitious Dr. Ellis, whose utilitarian attitude is summed up by his motto, "We can fix you up,"<sup>22</sup> is seen by Janet Ross, the psychiatrist, to be "terribly eager to perform the new operation."<sup>23</sup>



Even before his accident, Benson had been suffering from paranoid delusions that "machines were competing with human beings, and that ultimately machines would take over the world."<sup>24</sup>

The implantation of electrodes in Benson's brain helps to control his epileptic seizures, through feedback with a central computer. However, his paranoid delusions remain, and become aggravated to the point of psychotic violence. So the novel is another re-telling of the myth of Frankenstein's monster, or of the Jewish Golem. Benson takes his murderous revenge on any human being associated with machines, and is finally shot dead in self-defence by Dr. Ross after he has tried to demolish the hospital computer that is controlling him.

*The Terminal Man* adds an important complication to its analysis of the permission assumed by scientists and technologists for their work, in its reference to the neurological research of James Olds in the 1950s. Olds identified what he called "rivers of reward" in the brain, the electrical stimulation of which produces feelings of intense pleasure:

If an electrode was placed in such an area, a rat would press a self-stimulation lever to receive a shock as often as five thousand times per hour. In its quest for pleasure, it would ignore food and water. It would stop pressing the lever only when it was prostrate with exhaustion.<sup>25</sup>

This phenomenon leads Crichton to the notion of the "electrical addict" or "elad," as "the man who needed pleasureable shocks." At the hospital, Dr. Morris interviews Craig Beckerman, the first person to actually volunteer for the electrode-implantation operation undergone by Benson. He has read in a magazine article that "one jolt of electricity was like a dozen orgasms." When asked

by Morris why he wants the operation, he is surprised: "Are you kidding? Wouldn't everybody want it? Pleasure like that?"<sup>22</sup> Meanwhile, Benson himself begins to initiate seizures voluntarily in order to experience pleasureable shock.

In this way, Crichton's story explores possible reasons why consent to control may be given, thereby refusing a simplistic notion of human beings as merely passive victims of an imposed power relation. Control, in Barthes' phrase, is seen to be both imposed and demanded.

Crichton's use of science fiction as a criticism of power relations separates *The Terminal Man* from the mythical alibis taken up by many writers towards modern electronic society. Another response found in science fiction is a cool survivalism, drifting beyond simple moral polarities. Such an approach characterises William Gibson's *Count Zero* (1986). In this novel, the "elads" which provoke concern in *The Terminal Man* are treated with a more libertarian sense of permission, as a possible strategy of pleasureable survival. Electronic mysticism, familiar in Asimov, Arthur C. Clarke and *Tron*, here returns as a variation on the "expanded consciousness" of counter-cultural de-territorialisations.

Gibson invents the concept of "cyberspace," as a global electronic system connected to the nervous systems of computer-users, constituting a new sensory environment. Computer-users experience thrills of control and danger by plugging into cyberspace decks, which are described as

toys that shuttled you through the infinite reaches of that space that wasn't space, mankind's unthinkably complex consensual hallucination, the matrix cyberspace, where the great corporate hotcores burned like neon novas, data so



dense you suffered sensory overload if you tried to apprehend more than the merest outline."<sup>97</sup>

In Gibson's work, the experience of computers as a sort of pleasureable hallucinogen becomes the source of a new religion. In *Count Zero*, some computer operators have begun to invent myths of origin to account for their intuition of new forces present in the electronic matrix:

'Thrones and dominions,' the Finn said, obscurely. 'Yeah, there's things out there. Ghosts, voices. Why not? Oceans had mermaids, all that shit, and we had a sea of silicon, see? Sure, it's just a tailored hallucination we all agreed to have, cyberspace, but anybody who jacks in knows, fucking knows it's a whole universe. And every year it gets a little more crowded...'<sup>98</sup>

The arch technological visionary of this new religious society is Wigan Ludgate. "The Wig" has "become convinced that God lived in cyberspace, or perhaps that cyberspace was God, or some new manifestation of same." The Wig thus embarks on an "epic if somewhat random voyage of cybernetic discovery," using a "technique of mystical exploration" that involves

projecting his consciousness into blank, unstructured sectors of the matrix and waiting. To the man's credit, the Finn said, he never actually claimed to have met God, although he did maintain that he had on several occasions sensed His presence moving upon the face of the grid."<sup>99</sup>

The Wig moves into outer space to find God: "I gotta get up the gravity well, God's up there. I mean, he says, He's everywhere but there's too much static down here, it obscures His face."<sup>100</sup>

Beauvoir, the computer pirate, also speculates on the notion of electronic divinity. For him, the gods that inhabit cyberspace are Vodou forces of practical magic. The new religion is therefore a pragmatic, operational bricolage:

It isn't concerned with notions of salvation and transcendence. What it's about is getting things done. You

follow me? In our system, there are *many* gods, spirits. Part of one big family, with all the virtues, all the vices. There's a ritual tradition of communal manifestation, understand?<sup>101</sup>

The science fictional basis for this speculation is provided by Angie Mitchell, who appears to receive visitations from the gods of the electronic matrix. Her vision of a new creation myth suggests that the ghosts in the matrix may be the result of complex computers, based on "biochips," that have gained both sentience and the ability to self-replicate:

Once, there was nothing there, nothing moving on its own, just data and people shuffling it around. Then something happened, and it... It knew itself.<sup>102</sup>

The myth of "Artificial Intelligence," promoted by technologists such as Marvin Minsky at M.I.T., thus provides the basis for Gibson's speculations into a new form of electro-magic.

Nevertheless, *Count Zero* also explores computer technology in terms of competitive power struggles between corporate business interests, in legal and illegal markets. The basic narratives are repetitions of Western myths, with cyberspace as the new frontier. As Beauvoir puts it, "Bad dudes, big money, that's all you need to know."<sup>103</sup> However, in contrast to *Tron*, for example, Gibson introduces a hipster scepticism into science fiction. *Count Zero* is therefore agnostic and ironic about its own technological mysticism. Jammer claims that the matrix gods are a hoax perpetuated by rival business interests, while Marly senses the "almost palpable craziness that radiated from Wigan Ludgate."<sup>104</sup>

This ambivalent approach adds an element of complexity and of moral relativism to the novel. Yet in Gibson's future society, old myths seemingly cannot be avoided. As a result, the novel concerns



itself ultimately with survivalism, in which the pleasures of "jacking into cyberspace" are offset by the necessity of avoiding violence and surveillance.

*Count Zero* ultimately provides the consoling fantasy that personal heroism is possible in a complex, monolithic system. Though Jackie is killed by the force of cyberspace, Bobby heroically rides the danger:

He felt it, rode out to the edge and almost knew it for what it was. He was screaming, spinning, sucked up through the glacial white funnel that had been waiting for them...

The scale of the thing was impossible, too vast, as though the kind of cybernetic megastructure that represented the whole of a multinational had brought its entire weight to bear on Bobby Newmark and a dancer called Jackie. Impossible... On the way back, he'd seen the big thing, the thing that had sucked them up, start to alter and shift, gargantuan blocks of it rotating, merging, taking on new alignments, the entire outline changing.<sup>105</sup>

The parasitical, vampiric relationship, of being "sucked up" by a force greater than oneself, is experienced as pleasureable thrill. Like the other fictions considered in this chapter, with the exception of *The Terminal Man*, Gibson's *Count Zero* thus succumbs to a consolatory fantasy typical of modern industrial society. The myth of "electro-magic" common to these popular fictions suggests McLuhan's examination of the "craving for a power thrill that comes from identity with a huge, anonymous crowd," as the "craving for intense individuality and attention merges with the opposite extreme of security through uniformity." Submergence in the crowd signifies, for McLuhan, "release from personal responsibility."<sup>106</sup>

With its omnipotent fantasies of power and control, *Count Zero* is thus ultimately as reassuring as Disney's *Tron*. Bobby ends the novel with a glamorous soap actress, while the paranoias of modern

living are shown to be survivable. Bobby finds his new environment "scary," "but it was interesting enough to make the scariness worthwhile."<sup>107</sup>

Samuel Delany takes up these issues of survivalism in a highly technological society as an examination of which myths remain as valuable, and which may be rejected as anachronistic in a given culture. Delany sees his science fiction as moving beyond the bipolar morality of utopia and dystopia. Whereas most of the works explored in this chapter present their electronic technocracies as either morally desirable (Asimov, *Tron*, *Wargames*), or as morally evil (Crichton), Delany's fiction, like that of William Gibson, explores unstable regions beyond the possibility of such singular moral evaluations. However, also as in Gibson, this moral relativism and libertarian coolness tends itself to become a form of survivalism. Delany's revision of science fiction, away from the singular visions explored here, will be discussed in the next two chapters.



CHAPTER 16.

Samuel Delany: transgression and drift.

In an interview with Charles Platt, Samuel Delany speaks of the need to subject old myths to critical scrutiny, rather than to merely repeat them out of habit:

If you have a gut response to a story, you are not responding to something new; you can bet your bottom dollar that what you are really responding to is a story you were told when you were six or seven, which has been so overlaid, you don't recognize what it really is. But your subconscious recognises it. If you're going to work with those old things, I think you do better to work with them with a sense of irony, to know that you're telling the old story and indeed keep your tongue somewhat in your cheek as you tell it. You also have to know what those old stories are and what they mean in order to actually say something new, because, if you don't, what you will do is end up saying the old things without knowing it.'

Delany's *The Einstein Intersection* (1968) also examines the function of myth in a culture. In the novel, an alien race has taken over the Earth, which human beings have left to colonise other planets, leaving behind a radiation-contaminated planet. In order to cope with the hostile environment, the non-humans seek to become human through genetic mutation, and by imitating the cultural patterns of their predecessors on the Earth. Using this scenario, Delany investigates which myths are valuable, and which can be discarded, in a given society. These explorative processes concentrate on three main myths: Orpheus, Billy the Kid, and the Green Man or Christ myth.

Delany thus approaches science fiction critically in this novel, refusing to merely repeat and inherit its mythic and narrative

structures, as in most of the fictions discussed in chapter 15. Writing in 1970, Delany places his open, explorative fiction within wider cultural movements in America since the 1960s:

our culture's scientific context, which has given us the plow, the tape-recorder, insecticides, the butter-churn, and the bomb, is currently under an internal and informed onslaught as radical as our social context is suffering before the evidence of Women's Liberation, Gay Activism, Radical Psychiatry, or Black Power.

Much science fiction inadvertently reflects the context's failure.

The best science fiction explores the attack.<sup>2</sup>

In *The Einstein Intersection*, Delany quotes from a conversation with Michael McClure. This connection with the Beat writers is an important context for the fictional de-territorialisations of Delany's work. McClure's play *The Beard* (1965) also examines Billy the Kid as a mythical figure, in a context of breaking closures of habit and identity.

Finding themselves in Hell together, Jean Harlow and the Kid taunt each other:

Before you can pry any secrets from me, you must first find the real me! Which one will you pursue.<sup>3</sup>

McClure's play thus posits the self as multiple and complex. This acknowledgement of plural centres that disperse personal identity is a liberation from inherited restrictions: "We can do anything we want to here... WE'RE ABSOLUTELY FREE!"<sup>4</sup>

*The Beard* is therefore a Dionysian challenge to limits, exploring the possibilities of choosing behaviour according to desire, beyond precedent and law. As the Kid says, "I can be crazy and divine, or silly and divine - or violent and divine!"<sup>5</sup> This liberation of desire is duplicitous and paradoxical, both potentially creative and destructive:



Harlow: What'll we do?  
Kid: WHAT I WANT!  
Harlow: WHAT ABOUT ME?  
Kid: Whatever you want!™

This duplicity carries over into Delany's examination of the breakdown of habitual mythic actions in *The Einstein Intersection*.

The sense of potentiality and libertarian freedom in this novel is based on speculations on the epistemological implications of Kurt Gödel's Incompleteness Theorem, as a means of moving from a universe considered as a closed, finite system, towards an open, indeterminate universe in which innovation is possible. This potentiality is seen to include the possibilities of psychic power, as phenomena opened to serious consideration by the fracturing of the old paradigm of mechanistic determinism.

Thus the herdsman Spider tells Lobey of regions of uncertainty and promise beyond the limits of reason. Gödel's findings break through the rationalist programme, whose final defender was Albert Einstein:

Wars and chaoses and paradoxes ago, two mathematicians between them ended an age and began another for our hosts, our ghosts called Man. One was Einstein, who with his Theory of Relativity defined the limits of man's perception by expressing mathematically just how far the condition of the observer influences the thing he perceives... The other was Gödle (sic), a contemporary of Einstein, who was the first to bring back a mathematically precise statement about the vaster realm beyond the limits Einstein had defined: *In any closed mathematical system - you may read 'the real world with its immutable laws of logic' - there are an infinite munber of true theorems - you may read 'perceivable, measureable phenomena' - which, though contained in the original system, can not be deduced from it - read 'proven with ordinary or extraordinary logic'...* There are an infinite number of true things in the world with no way of ascertaining their truth. Einstein defined the extent of the rational. Gödel stuck a pin into the irrational and fixed it to the wall of the universe so that it held still long enough for people to know it was there.⁷

In the Einsteinian universe, "humanity was able to reach the limits of the known universe with ships and projection forces that are still available to anyone who wants to use them..." But beyond the intersection point between Einsteinian and Gödelian conceptions, lies an area beyond the rational:

when the line of Gödle's law eagled over Einstein's, its shadow fell on a deserted Earth. The humans had gone somewhere else, to no world in this continuum.®

In this way, *The Einstein Intersection* speculates on possibilities of breaking habits of rationalist closure through an exploration of difference.

Random genetic mutations among the non-humans who took the place of the absent humans are increasingly producing people who are "different." Lobey has an unusual talent for music, playing tunes which he is able to learn directly from the minds of people in his company. His lover Friza is able to make pebbles move without physical contact. However, as Spider suggests, the real nature of difference is more than this:

It isn't telepathy; it's not telekinesis - though both are chance phenomena that increase as difference increases.®

The differential world described by Spider is not governed by the fixed, immutable laws of the Newtonian universe that Einstein made a final effort to save. Rather, it is an open, indeterminate landscape in which old narratives and totalising myths may no longer apply. As Spider continues:

We have taken over their abandoned world, and something new is happening to the fragments, something we can't even define with mankind's leftover vocabulary. You must take its importance exactly as that: it is indefinable; you are involved in it; it is wonderful, fearful, deep, ineffable to your explanations, opaque to your efforts to see through it;



yet it demands you take journeys, defines your stopping and starting points, can propel you with love and hate...

This sense of potentiality, of the need for drifting, open systems, provides the bases for Delany's explorative science fiction.

Lobey realizes that his journey to find Friza is a repetition of Orpheus's failed quest for Euridice. He comes to understand that this is the central issue of his life: whether the myths that his race use to structure their experience are useful in guiding behaviour, or whether they merely serve to constrict its potentiality. "Why can't you just ignore the old stories?" he asks Spider, who counters by pointing to the difficulty in avoiding repetition: "Myths always lie in the most difficult places to ignore. You shy at them on entering or exciting any endeavor."

The old stories provide a law, which, as Spider says, "you can either break or obey"; they set a goal, and "you can either fail that goal, succeed, or surpass it."<sup>10</sup> Accordingly, in *The Einstein Intersection*, behaviour is not locked in pre-determined patterns, but instead there is the possibility of innovation within a variable, diverse field of action.

To succeed in his quest, Lobey must first deal with Kid Death, the murderous Billy the Kid figure. Lobey is thus forced to go through archaic motions. As the oracle PHAEDRA tells him, "I suppose you have to exhaust the old mazes before you can move into the new ones. It's hard."<sup>11</sup> At the end of the novel, PHAEDRA advises that he is still in "the wrong maze, baby," and that he must "seek somewhere outside the frame of the mirror."<sup>12</sup> In Delany's fiction, progress is made through this breaking of enclosures, producing creative difference.

Yet the concept of difference appears both destructively and constructively, in the respective figures of Kid Death and Green-eye. Kid Death is the "criminal genius, psychotic, and a totally different creature"<sup>13</sup> who repeats the myth of Billy the Kid. He kills Friza and Dorik out of fear, because "they were different. And I am more different than any of you." Kid Death possesses near-omniscient powers of telepathic mind control, which enable him to destroy life at will:

I saw through all the worlds' eyes - I saw what you and Friza saw, as I see what goes all over this arm of the galaxy. When what I saw frightened me, I closed the eyes seeing.<sup>14</sup>

Kid Death's difference is thus regressive, as his atavistic body, with its shark's teeth and gills, further suggests. He admires the Western movies made by the former inhabitants of the planet, describing them as an "art-form the Old Race, the humans, had before we came."<sup>15</sup> This violent, anachronistic art-form provides the model for the Kid's behaviour: he is a living re-run.

The only character immune to Kid's destructiveness is Green-eye, who, as a variation of the Green Man myth, plays a role of potential saviour through love and an innovative use of difference. He is "chary of ritual observances,"<sup>16</sup> breaking out of closed systems of repetition, and refusing to be tempted by Kid Death's offer of old forms of human wealth, technology and power which he could gain by joining the killer. Unlike Kid Death, Green-eye is able not only to change things, but to create the new. He thus uses his energies in a positive way, as Lobey does with his musical genius:

Kid Death can control, but he cannot create, which is why he needs Green-eye. He can control, but he cannot order. And that is why he needs you (Lobey).<sup>17</sup>



In his desire to revenge the murder of Friza by killing Kid Death, Lobey engages in repetition, an attempt to kill death with more death, which, as Eric Mottram argues, remains as a fatal error that "stands at the centre of impotence in western culture."<sup>13</sup>

On the other hand, Green-eye's solution to the problem of archaic repetition and sacrificial killing is to step out of the enclosures of habit, in order to innovate. When Lobey articulates his hatred of the Kid, and his intention to kill him, Green-eye sings, "There is no death, only love," a phrase which "he wouldn't repeat."<sup>14</sup> For Green-eye, the ritual of killing can be ended, not by more death, but by transcendence of closed systems.

However, Delany does not allow the bipolarity between Kid Death and Green-eye, between destructiveness and creativity, to become a simple dialectic. For Kid Death is not stopped by love: he is viciously whipped to death by Spider, his mental powers having been made harmless by Lobey's music. His body is then eaten by a flower. This ambivalence between creativity and destructiveness is further dramatised in Lobey's machete, a knife with twenty holes along the length of the blade, which doubles as a weapon and as a musical instrument. When Green-eye is strung up by Spider on the orders of Kid Death, Lobey tries to resuscitate him, in the hope that he will help him bring Friza back to life. He starts by playing music, but when this fails, he strikes Green-eye in rage with his machete, delivering the blow that finally kills him. The difference between life and death, creativity and destructiveness, is thus a knife's edge: the deaths of both Kid Death and Green-eye are ambiguously poised between convergence with, and divergence from, the framework

of old myth, as the novel seeks, in the words of PHAEDRA already quoted, to exhaust the old mazes before it can move into new ones.

In an extract from his journal, Delany reveals what might be called the deconstructive design of his novel:

still, the images of youth plague me... By the end of TBI I hope to have excised them. Billy the Kid is the last to go.<sup>20</sup>

But this desire to end repetition of outmoded images and forms of thought is followed by a quotation from Masters and Houston's

*The Varieties of Psychedelic Experience*, which states that:

Throughout most of the history of man the importance of ritual has been clearly recognized, for it is through the ritual acts that man establishes his identity with the restorative powers of nature or makes and helps effect his passage into higher stages of personal development and experience.

The usefulness of old forms, of ritual repetition, is thus paradoxically restated, at the start of the chapter in which Green-eye prepares for his return to the city, where he will be betrayed by Spider and strung up to die, in a ritualistic repetition of the myth of Judas Iscariot and Christ.

The novel is therefore open and ambiguous. The various myths weave in and out of the text, and are not used compulsively, but with choice, so that the closed, deterministic structures of the past are prised open, and subjected to historical critique. The Billy the Kid myth in particular, as Eric Mottram puts it,

has been recognized as deadly, a deathly creation of men at a particular time and in a particular place, usable only if those circumstances are made to repeat themselves. There is no question of endless archetypes divorced from cultures so that they may be perpetuated as images of survival.<sup>21</sup>

In another extract from his journal, Delany states his awareness of the need to refuse totality and completeness: "Endings, to be



useful, must be inconclusive."<sup>22</sup> At the end of *The Einstein Intersection*, Lobey's quest is deferred, as he learns that he must not repeat the story of Orpheus, and must rely on the innovative Green-eye to get Friza back. In the meantime, he decides to embark on a second journey, drifting through the galaxy looking for work. When he returns to Earth, as Spider tells him, "It's not going to be what you expect... it's going to be... different."<sup>23</sup>

The short story, "Dog in a Fisherman's Net" (1966), further explores aspects of closure and transgression, deploying one of the images central to Delany's work, that of the net or web.

The story begins with the death of a fisherman. Panos (Paniyotis) is mending a broken fishing net after a storm when a stray dog becomes entangled. The other fishermen, in trying to protect the net on which their livelihood depends, try to kill the dog, but in the confusion Panos is accidentally stabbed in the neck and killed. The rest of the story explores the efforts of the dead man's brother to come to terms with this catastrophe.

Spyro's memories of his brother are presented as a deadly enclosure. The net is an image of entrapment in a repetitive, exhausted order:

But all he had were memories of Panos. They clawed, would not loosen, even though he was exhausted with them: Panos yawning at dawn, cursing at noon, laughing in the evening at the cafe. The laughter, still on Spyro's face, only netted the beasts. But oh, they turned and tore and twisted.<sup>24</sup>

As in *The Einstein Intersection*, the way to survive debilitating closure is to break the net, to innovate and change, rather than staticise and repeat. Spyro recalls an incident from the past, in which the brothers returned from hunting rabbits in the mountains to

find that their house had been badly damaged by an earth tremor. For Spyro, this catastrophic dislocation of security produces "the shattered familiar, the safety of his birthplace broken," and prompts the question: "Panos, what must we do?"

Panos' response to the rupture of the earth tremor is to break the normative code of consumption for his society. He gives away the rabbits he has caught, and a jar of wine, to his neighbours, as "a few little presents," thereby disrupting the conventional, closed system of exchange in favour of a new open system of gifting.<sup>25</sup>

After Panos' death, Spyro similarly gives away the fish he has caught that day: "The price to you is the work it takes to carry it home!" Breaking the social code of exchange in this way releases Spyro's emotions from the obvious path of sorrow, as the closures of identity are temporarily dislodged:

Something more powerful than sorrow, but propelled by it, erupted from him. The full sound clanged in his throat for seconds before he recognized his own laughter.<sup>26</sup>

Such Dionysian breakages of order also figure in the celebrations for the Christian festival of St. Barbara, which are disrupted by a group of goat herders, whose women dance "forbidden steps and rhythms."<sup>27</sup> This irruption of Dionysian rites, taking place in a torrential rainstorm, attracts Spyro's virginal sister Piope, who tears off the closures of taboo in another image of a broken net:

it was suddenly as if the lewdness had been ripped away revealing - evil or good, Spyro did not know, but it was vast as the secrets behind his sister's unsettling stare.<sup>28</sup>

As in *The Einstein Intersection*, the simple bipolarity between evil and good, creative and destructive, is exploded. Piope runs off into the mountains for three days, and returns with scratches on her face



"that couldn't have been from brambles, for they were in ordered, parallel strokes."<sup>29</sup> The transgression of order in Delany thus can entail areas of sado-masochistic permission, as an aspect of the duplicity of such transgressions of normative security.

The island in the story increasingly becomes an enclosure, from whose confines and daily repetitions escape is difficult, but necessary. Though Piope is later tied down to the closures of a humdrum marriage, Katina puts up more resistance, and finally succeeds in breaking away. At the end of the story, she and Spyro go swimming naked in the sea, looking for the submerged statue of the goddess to whom the island is dedicated. But they find the statue itself enclosed in lost fishing nets. This is for Katina the final impetus needed for her to break away from the island:

"I do not like this place, this little island," she began again. "It is somehow like we are all caught in - like Panayotis. Then one dives below and discovers even She is bound in the nets of men."<sup>30</sup>

Movement, a journey of displacement, thus becomes a necessary means of survival. Spyro decides to leave Milos for Piraeus: such leaving will not be hard, for "old, waterlogged nets tear easily." Katina similarly decides to go immediately to Syros, and from there "anywhere!" In this story, catastrophic eruptions in the continuum of deathly static enclosure are sources of renewed energy.

In *Nova* (1968), a desire for stasis and order is in play with a desire for movement and transgression. As an historical novelist, Katin watches for ruptures in order and stability in the web or net of history:

From star to star, Mouse; imagine, a great web that spreads across the galaxy, as far as man. That's the matrix in which history happens today... Each individual is a junction in that net, and the strands between are the cultural, the

economic, the psychological threads that hold individual to individual. Any historical event is like a ripple in the net... It passes over and through the web, stretching or shrinking those cultural bonds that involve each man with man. If the event is catastrophic enough, the bonds break. The net is torn awhile.<sup>31</sup>

Katin's task to "contemplate the flow and shift of the net."

The main protagonist who disturbs historical stability and continuity is Captain Lorq von Ray, whose drifting beyond static order renews energy, for both destructive and creative purposes. Lorq's charismatic leadership repeats key myths of technological and imperialist expansion, such as the Grail legends, Faust, and Prometheus. His quest for Illyrion, as a source of absolute energy, is part of a recurrent historical urge for a key to universal control.

Ahab's hubristic boast in *Moby-Dick*, that he would "strike the sun if it insulted me,"<sup>32</sup> is in effect taken literally in Delany's novel, as Lorq attempts to capture the atomic energy at the centre of a star that is turning nova. Like Ahab, he is identified with Prometheus, in seeking to "go into the rim of chaos and bring back a handful of fire."<sup>33</sup>

The rebellious hero of nineteenth century industrial science and technology, Prometheus is described by Michel Serres as a destroyer of closed limits, exploding stasis into motion, and transforming matter into energy by revealing indeterminacy at the heart of thermodynamic processes. His actions show that,

beneath the forms of matter, stochastic disorder reigns supreme. To smelt is to rediscover chance as fundamental. The furnace is the engine for going back toward chaos. The foundry is where creation starts over at zero. History is recast beginning with primitive matter.<sup>34</sup>

In Delany's novel, the nova is a similar image of boundless energy:



"The whole continuum in the area of a nova is space that has been twisted away... Where we're going all law has broken down."

"Which law do you mean? Katin asked. "Man's, or the natural laws of physics, psychics, and chemistry?"

Von Ray paused. "All of them."<sup>35</sup>

In contrast, Lorq's enemy, Prince Red, is interested in preserving social balance within existing legal limits. As Lorq defines this opposition:

You're for stasis, I'm for movement. Things move. There's no ethic there.<sup>36</sup>

Lorq's Promethean rebellion thus destroys all inherited moral codes. In Delany, such Dionysian transgressions edge into total permission, even for neo-fascist expansion and totalitarian control.

Lorq asserts his need for difference rather than homogeneity as a survival tactic, as he tells Prince's sister:

You and I, Ruby, the worlds we've been through haven't really fit us for meanings... perhaps it is a game. They keep telling us we live in a meaningless society, that there is no solidity in our lives. Worlds are tottering about us now, and still I only want to play. The one thing I have been prepared to do is play, play hard, hard as I can; and with style... The way through is to make your own (rules).<sup>37</sup>

The breakdown of inherited orders in Delany's fiction thus opens up issues of survivalism, an issue which will be discussed in more detail in the next chapter.

Lorq's desires move beyond capitalist competition for profit into an apocalyptic world of survival through style, adventure and risk. He rebels against stasis and closure into a supernervous, psychotic gamble with life and death. The alienated opposer of Romantic tradition, Lorq commands the total obedience of the gypsy boy, Mouse, who is a more positive, less destructive example of a drifter between systems. As a petty thief and drifter, Mouse is a

Hermes figure, recalling Paul Radin's description of the "spirit of disorder, the enemy of boundaries."<sup>39</sup> The trickster god opens new areas within the socially forbidden.

Mouse may be compared to Norman Mailer's "hipster," which he explored in his essay "The White Negro" (1957). The hipster is a rebel who exists "without roots," preferring to stability the risk of "that unchartered journey into the rebellious imperatives of the self."<sup>40</sup> Mouse volunteers immediately to join Lorq's search for Illyrion, enthusing that it will be a "real changey trip," as his "voiced licked at the danger."<sup>41</sup> In this way, he revels in the vertigo of modern society, celebrating the present moment, without history or future, in an individualist act of rebellion that celebrates the intensities of personal experience.

Mouse thus inhabits a landscape in which fear, disturbance and insecurity are lived as creative opportunities:

I like today; that means I have to live scared. Because today is scary. At least I'm not afraid of being frightened.<sup>41</sup>

Moreover, Mouse suggests McLuhan's sense of the all-at-onceness and tactile involvement of electronic culture. His "syrynx" produces a synaesthetic art, generating sounds, hologramic images, and smells, to invent, for communal consumption, simulacra of the instantaneousness and risk of his life:

we can only go down to drink one place and it's called 'now'. I play my syrynx, see, and it's like an invitation for everybody to come down and drink. When I play I want everybody to applaud. Cause when I play I'm up there, see, with the tightrope walkers, balancing on that blazing rim of crazy where my mind still works.

The balance of the tight-rope walker relies on risk and movement, rather than static equilibrium. Like Mailer's hipster, Mouse exists



"in the present, in that enormous present which is without past or future, memory or planned intention..."<sup>42</sup> He is an anomaly in the predictable, planned order of modern society, which he counters with an awareness of spontaneity, emotionality and drift.

Yet the ambivalence of such drifting may be seen in the susceptibility of the drifter to control by others. In *Nova's* exploration of the nature of the obedience given to its Promethean leader, the crew find a common purpose in joining Lorq's quest for the Absolute. They all volunteer immediately for the voyage, as Lorq presents himself as a charismatic leader whose "voice was big."<sup>43</sup> Lorq's followers are drifters, who show allegiance to the Captain's desire for movement and for his challenging of limits.

Katin does not question his own submission to the Captain's will until the ship is already close to the star. When he does, he explains that Lorq has provided his crew with an aim, an object for desire:

We were drifting, Mouse, you and I, the twins, Tyy and Sebastian, good people all of us - but aimless. Then an obsessed man snatches us up and carries us out here to the edge of everything. And we arrive to find his obsession has imposed order on our aimlessness; or perhaps a more meaningful chaos. What worries me is that I'm so thankful to him. I should be rebelling, trying to assert my own order. But I'm not. I want him to win his infernal race. I want him to win, and until he wins or loses, I can't seriously want anything else for myself.<sup>44</sup>

Katin's desire for teleological purpose, his wish for a glimpse of the Absolute, is thus isomorphic with Lorq's own. Accordingly, he cannot resist looking directly into the energy source: "I've got to see it!" he says, to which Lorq replies that he "always thought you would be the one to understand."<sup>45</sup>

In this way, *Nova* does not condemn the Promethean ambitions of its major protagonist. Unlike Melville's Ahab, who is signified in terms of singularity and mechanical fixity - "naught's an obstacle, naught's an angle to the iron way!"<sup>46</sup> - Lorq plays a game of chance, and is finally allowed his victory. In his blindness, after gaining the Illyrion from the nova, he feels "no sin," concluding that, "it must be that I am free and evil."<sup>47</sup> Delany's moral relativism thus finds no condemnation for Lorq's criminal megalomania. Instead, Lorq is an image of heroic survival, his obsessive crossing of boundaries combining chance and speed in total sensory involvement:

I'm taking chances in this game, Ruby. I tried to play it through once with a computer plotting the moves... Now I'm playing by hand, eye, and ear. So far I've come out no worse. And it's moving a lot faster. I've always liked speed.<sup>48</sup>

Such tactics of survival outside deterministic systems, playing by chance in an accelerating, fragmented environment, play a large part in *Dhalgren* (1975). Edging into areas of armed, violent survivalism, the novel continues Delany's exploration of the processes by which myths are formed and perpetuated in a society where inherited patterns have broken down.

The amnesiac, nameless protagonist, initially known as "Kidd," becomes "The Kid," as he assumes a more prominent role in the group. When Pepper asks Kidd his name:

On a ludicrous impulse, Kidd stuck his thumb in his pocket, put his weight on one hip. "Some people have been calling me the Kid."<sup>49</sup>

So Kidd becomes Kid, "Kidd decided."<sup>50</sup> Delany thus shows how myths can be arbitrarily chosen or repeated, on a "ludicrous impulse." But myths can also be rejected, as in *The Einstein Intersection*. Lanya



remarks that, "If people are busy living out myths you don't like, leave them do it."<sup>51</sup>

*Dhalgren* explores a drifting urban landscape, where old forms and structures have broken down, and new ones have to be invented for survival. Bellona is a city where radio and television transmissions no longer get through:

Very few suspect the existence of this city. It is as if not only the media but the laws of perception themselves have redesigned knowledge and perception to pass it. Rumor says there is practically no power here. Neither television cameras nor on-the-spot broadcasts function: that such a catastrophe as this should be opaque, and therefore dull, to the electric nation! It is a city of inner discordances and retinal distortions.<sup>52</sup>

The breakdown of code and law, perceptual and technological, produces a defamiliarised, dangerous landscape, in which survivalism becomes a major issue. Accordingly, Kid hears in the "unsettling tone" of Tak's voice, a "demand for relief from situations which were by definition unrelievable."<sup>53</sup> As Calkins puts it, "Apocalypse has come and gone. We're just grubbing in the ashes."<sup>54</sup>

Out of this desperate situation, *Dhalgren* comes close to condoning the violence of the outlaw band of "Scorpions," the novel's "slightly demonic heirs" of the sixties' flower-children.<sup>55</sup> The energy of Beat rebellions has decayed into this anarchic violence, reminiscent of Manson's Family and the Hell's Angels, as the novel suggests that, "We can survive so much."<sup>56</sup> *Dhalgren* enters areas of armed survivalism recently glamourised by epic, militaristic film such as *Mad Max II*, and by *The Survivalist* novels by Jerry Ahern. In the opening novel of this on-going series, "Total War" (1981), the technology of armaments is relished in close detail, brand names included, as John Rourke, the C.I.A.-trained gun

expert, survives in a post-holocaust world by committing acts of violence against Communist, biker and drug-smuggler alike. From his perspective,

"There are enough loonies loose in the world today to screw up the planet so bad that survivalism training is going to be the only thing that'll keep people alive - maybe."<sup>57</sup>

Delany's *Dhalgren* avoids such paranoiac obsessions by a more positive exploration of the possibilities of drifting beyond teleological structures and fixed systems:

The way anywhere in this city was obviously to drift; Kid drifted, on kinesthetic memory. To try consciously for destination was to come upon street signs illegible through smoke, darkness, or vandalism, wrongly placed, or missing.<sup>58</sup>

Delany's novel thus moves beyond the mania for fixed interpretation and total system that besets Thomas Pynchon's Slothrop in *Gravity's Rainbow* (1973), sitting in Säure Bummer's kitchen, "reading soup recipes and finding in every bone and cabbage leaf paraphrases of himself," and recalling "days when in superstition and fright he could *make it all fit*."<sup>59</sup> In refusing to succumb to such paranoiac desires for totalisation and singularity, *Dhalgren* adopts strategies similar to those explored by Ronald Sukenick, as discussed in chapter 19 of this thesis.

Openness to the unexpected and to risk in *Dhalgren* brings experiential rewards: "Across the damask of doubt and hesitation was unexpected joy like silver."<sup>60</sup> Lanya wants "to try out some things I'm afraid of,"<sup>61</sup> while Kid finds it "Odd that the elements of pleasure were so many greys, so much fear, so many silences."<sup>62</sup>

This awareness of the positive value of uncertainty, risk, fear and of the non-verbalised distinguishes Delany's speculative fiction from the preponderance of American science fictions, such as many of



those discussed in the previous chapter, in which the disturbing, anomalous or strange is appropriated or killed. In the American film *The Thing* (1951), the monster is not only killed, but totally obliterated: "we don't want any part of it left." *Dhalgren*, in contrast, preserves its sense of the uncanny and unfamiliar, its fascination for monstrous difference, as it resists science fiction's habits of securely definitive explanation.

Experience in the novel thus possesses undecidable elements beyond rational codification. Examining his own feelings, Kid realizes that, "The articulate fear slips, while we try to measure, but come away with only the perpetual angle of distortion, the frequency of an amazed defraction."<sup>33</sup> Heisenberg's uncertainty relation is here broadened in application to include problems of the dislocation of subjectivity beyond *a priori* securities.

Moreover, unlike many science fictions, *Dhalgren* does not assume the positivist myth of factual certainty. When the sun grows in size to take up half of the sky, it is suggested that it may have gone nova. But the final truth of the situation is never revealed, and interpretation remains unsteady. The immensity of the sun is a new fact that disrupts any context of intelligibility. Its hugeness "fell away into impossibility. Or unverifiability, anyway."<sup>34</sup>

The new in *Dhalgren* is therefore not easily assimilated into signifying systems. Instead, drift in time and uncertainty within *a priori* systems is acknowledged. Accordingly, the astronaut Kamp describes how "standard information patterns just broke down" when he was confronted with the moon landscape. He came to realize that he was automatically interpreting the new landscape according to the

preconceptions and pre-existing mental sets of his astronautical training on earth:

We'd trained for prolonged free-fall by spending time underwater in diving suits. I remember when we actually hit sustained weightlessness, I broadcast back, 'Hey, it's just like being underwater!' and yet as I said that into the chin mike, I was thinking: You certainly could never *mistake* the two conditions for one another. But I couldn't think of any way to say what was different about it, so I just described it the way everybody, who'd never been there themselves, had *told* me it was going to feel like.<sup>65</sup>

Landing on the moon was a new experience, breaking old habit structures, and bringing initially a sense of chaos, and then a slow regaining of the powers of interpretation and of cognition. Kamp describes the moon as:

another *world*, and when you're there, you have no way of knowing *what* anything means. *Physically*. That whole landscape tells you nothing about itself, on any level, in the way that the most desolate stretch of sand on earth tells you about the winds that have blown over it, rains that have or have not fallen, or the feel it might have beneath your feet if you walked across it. 'An airless, waterless void...' the way they say in all the science-fiction stories? No, that refers to some desert on earth, or what space between the stars looks like when you're safely tucked under the atmosphere. The moon is a different world, with a different order that you don't understand.<sup>66</sup>

*Dhalgren* thus continues Delany's revision of science fictional habits, as he allows into his work an acceptance of difference and of chaos as a necessary part of ordering processes.

Desires to interpret phenomena according to a single signifiatory system are thereby qualified in an acceptance of a lack of secure meanings:

There is nothing safe about the darkness of this city and its stink. Well, I have abrogated all claim to safety, coming here. It is better to discuss it as though I had chosen. That keeps the scrim of sanity before the awful set. What will lift it?<sup>67</sup>



Yet the risk of insanity as a consequence of living outside secure structures leads to an interest in fixed order, to offset entropic chaos. As firm foundations are disrupted, there remains a need for renewed confidence:

It is a warm morning. I do not recognize any protection in this leafy blister. There is no articulation in the juncture of object and shadow, no fixed angle between fuel and flame. Where would they put their shelters, foundations sunk on ash; doors and windows sinking in cinders? There is nothing else to trust but what warms.<sup>66</sup>

The need is for an enabling but non-coercive order. Similarly, in his poetry and journal-writing, Kid seeks to avoid placing a bogus coherence onto events, preferring fragmentation to a fraudulent order. His journal is therefore "a chronicle of incidents with a potential for wholeness they did not have when they occurred; a false picture, again, because they show neither the general spread of my life's fabric, nor the most significant pattern points."<sup>67</sup>

*Dhalgren* thus explores at length relationships between order and chaos, in which a desire for disruptions of interpretation and system is in play with residual needs for the same. The title of the opening section, "Prism, Mirror, Lens," reveals Delany's concern with shifting processes of mediation between self and other, within a discussion of the securities of representation and identity:

From this play of night, lighting, and leather, can I let myself take identity? How can I recreate this roasted park in some meaningful matrix? Equipped with contradictory visions, an ugly hand caged in pretty metal, I observe a new mechanic. I am the wild machinist, past destroyed, reconstructing the present.<sup>70</sup>

Order is provisional, a part of phenomenological processes, as the novel states that there is "no way to begin" and "no way to conclude."<sup>71</sup> Nevertheless, epic, linear order is restored at the end

of the novel, as the form of the book turns in an immense circle back to the beginning, in an imitation of Proustian overall order. Obsessions with clarity, order and epic teleology thus remain in Delany's work, amid his fiction's questioning of the inheritance of such habits and strategies.

The next chapter will relate Delany's novelistic practices to his pluralistic theory of science fiction, and will examine further the libertarian and survivalist bases of his most recent science fiction.



CHAPTER 17.

Samuel Delany: pluralism and survival.

Delany's science fiction explores the possibilities of healthy, open systems, in response to the entropies of over-organisation. In this way, his work may be seen in a similar context to that of the Beat writers, inventing strategies in opposition to the technocratic state reinforced in America by the Second World War. This connection, made explicitly in Delany's reference to Michael McClure, as discussed in the previous chapter, may also be seen in *Heavenly Breakfast: An Essay on the Winter of Love* (1979), which describes the anarchist commune in which Delany lived, on Second Street, in the Lower East Side, from November 1967 to its disbandment at the end of March 1968. The book is dedicated to "everyone who ever did anything no matter how sane or crazy whether it worked or not to give themselves a better life."

Delany places the commune within a wider context of the 1960s, seen as a complex cultural process which included "the radical revisions going on in our model of the relation of human being to human being across each individual's personal political space: female to male, male to female, black to white, white to black, private individual to politicized group, or group to individual." The "Heavenly Breakfast" rock group and commune were experiments in difference, exploring new ways of living and creating, based on mutual aid rather than on hierarchical organisation.

Fixed, doctrinal politics are therefore rejected in favour of multiple revolutions in local, personal relationships. In response to the entropic over-organisation of bureaucratic society, the Heavenly Breakfast commune was informal, and deliberately shunned organisation:

We never had anything even resembling an organizational meeting. If you wanted something done, you did it; if you wanted people to do something, you asked them. The goad to do something someone wanted you to do was having to live with that person's discomfort and disapproval if you didn't do it. As close as we lived, that was quite a goad.<sup>2</sup>

The Heavenly Breakfast was therefore not a collective, and "not particularly democratic." The political basis was rather a libertarian respect for the sovereignty of the individual:

The standard bohemian/liberal education teaches you quickly not to take offense at someone else's desire. If it pleases you, you move toward it; if not, you sidestep politely as your individual temperament allows. At the Breakfast I learned to move within the circle of other people's desire, and be at ease as I generated my own. And I would strike one of my senses before I would part with that knowledge.<sup>3</sup>

The attempt is therefore made to create a society without Oedipal, authoritarian structures. So the "nuclear family" is replaced by communal child-rearing, as an exploration of the new and unfamiliar: "I think all of us at the Breakfast felt like adopted uncles or aunts, or perhaps some closer relation that hasn't been given a name yet."<sup>4</sup>

Accordingly, another experiment in group living, January House, with its meal-timetable, separate rooms, and rota for cooking and washing up, is rejected as too bureaucratic and regimented. Lief, one of January House's occupants, describes other communes he has heard of:

some of them could stand a little more organization. They're always breaking up so quickly. And of course that's what



critics of our kind of life-style are so fast to jump on. But I feel something like a shining example. January House has been here for ten years now.<sup>5</sup>

For Delany, the idea that "Communes can be made very stable with a little planning" misses the necessity of avoiding such assumptions of value inherited from established society: "Maybe an essential part of communes is their impermanence. Maybe communes just break up."<sup>6</sup>

The Heavenly Breakfast is therefore a rhizomic, temporary, provisional order, which is not allowed to atrophy into a bureaucracy. Instead, order and spontaneity are found to be mutually enabling:

It was learned in the same way we learned how and why the spontaneous happens so well, so often, and so rewardingly, the more exacting (and the more familiar we were with the exactitudes of) the framing structure.<sup>7</sup>

The libertarian bases of Delany's work thus consider politics in terms of individual preference, beyond static ideology. In comparison, orthodox politics, represented by opinion polls on the Vietnam War, are collusive:

All political action within a given political system perpetuates that system if only because that system has defined which actions are and which actions are not political....

I am as sure that the young man with his clipboard is opposed to the war as he, no doubt, is sure that we are. Our differences are purely personal, as are all political encounters within the statistical matrix of a megalithic republic.<sup>8</sup>

The model for politics here resembles Boltzmann's molecular theory of gases, emphasising local, individualised and atomistic deviations from general law. Politics is seen to consist in the irreducible complexities of personal experience and inter-personal collisions and encounters, beyond ideological simplifications and fixities.

Political innovation is therefore enabled by a breaking of established social codes and procedures. Like Buckminster Fuller, Delany rejects the ideological struggles between capitalism and socialism as archaic:

The future may well decide that their shared inadequacy is that neither makes any changes in those variables - the actual spaces and objects between people - that govern the equations of community and communion which, when all is said, if not done, determine how well any system, from dictatorship to anarchy, will work, as well as what strength subsystems will be needed to enforce it.<sup>9</sup>

Consequently, politics involves the "texture and affectivity of life lived humanely, day by day."<sup>10</sup> *The Heavenly Breakfast* thus explores new spaces and times that recall the mutually involving, tactile spaces of McLuhan's electronic age, the new age of modern physics, beyond Newtonian linearities:

I do not believe in telepathy. I know your feelings through my eyes, through my ears. The information comes via light and sound: the square of the distance intervening between us must be a diminishing factor in how much information and energy crosses from me to you and back. But when you and I live so closely that touch and smell are suddenly half of what we communicate, new laws govern the interchanges as different as strong and weak particle interactions.<sup>11</sup>

Delany here draws on the new paradigm of quantum physics, to explore a new social model that enables a relativistic, libertarian politics.

This desire to clear away the damaging, limiting effects of Newtonian determinism from American culture also underpins Delany's theoretical conception of science fiction writing. In *The American Shore* (1978), science fiction is asserted to take place within "that gravitically neutral space (free-fall) where imagination streaks between worlds, between stars."<sup>12</sup> Deploying a vocabulary reminiscent of Buckminster Fuller's essay "Total Thinking," Delany extrapolates



from twentieth century physics to posit science fiction as a form of literature that rejects Newtonian hierarchies. Linear, up-down models, based on a universal law of gravity, or what Delany refers to as "Western thought... organized by (and restricted to) a primarily gravitic value matrix," are apparently superseded. For in the basic narrative of science fiction, a rocket escapes gravity, and then acceleration ceases:

with its cessation comes the release of the gravitic effect, which is replaced by the weightless state, free-fall, in which all prior gravitic organizations become malleable, trivial, a mere cross section of the complex locus of current objective trajectories within the ship's confines. Space is that topos not organized by up and down, day or night...

The value template this cosmological matrix substitutes for the gravitic value system is a comparatively relative one, where the two directions are not *up* and *down* but rather *central* and *peripheral*, a model where shifting trajectories through a three-dimensional matrix determine which point is or is not center *vis-a-vis* surrounding trajectories.<sup>13</sup>

In his interview with Charles Platt, Delany explains his interest in the convention of "space opera," as part of this disruption of territorialised space into relativistic, plural centres:

I do like the basic 'space-opera' construct, the basic field in which it takes place - a field which has many worlds and exists as a set of relative centres. There is a kind of linear, gravitic thinking that organizes so much of our thinking; I do think just that basic image of several worlds relating to one another undercuts this up-down, higher-lower metaphorical thing, so that, somehow, there is good in the space-opera construct *per se*. I like the freedom that it gives.<sup>14</sup>

Delany relates his interest in multiple centres to his upbringing, as a black child, migrating between "two cultures," attending a white upper-class school at Park Avenue and 89th Street while living in the family home in Harlem:

I had a chance to compare different cultures in a way that still influences what I do and what I write. In one sense I've always been writing about people making trips through

that kind of barrier - although not necessarily a racial barrier.<sup>15</sup>

In his science fiction, therefore, Delany attempts to break with the authoritarian singularities of earlier utopian science fiction, such as Bellamy's *Looking Backward*. Science fiction is for Delany, in contrast to such doctrinaire programmatics, a "literature of plurality, historical, theoretical and artistic, in that it explores conflicting ideas without choosing between them."<sup>16</sup> The emphasis on personal preference and on libertarian choice, evident in *Heavenly Breakfast*, thus plays an important role in Delany's theory and practice of writing.

Louis Marin's *Utopics: Spatial Play* (1984) explores the presence of multiplicity within singular utopian texts in a way similar to Delany's theoretical writing. For Marin, utopian fiction's representation of the homogenous, closed space of classical science provides its own critique, as multiple, contradictory discourses are revealed within that totalising, singular impulse:

Ideological discourse would hope to express historical reality by deadening and shaping it into a closed system of ideas aimed at presenting a justified and legitimated representation of it. Utopia as a figure inscribed within a fable-producing discourse *puts ideological discourse and its representations into play* in a double sense - implicitly but critically questioning them, and setting them apart in order to reflect upon the presuppositions of their internal systems. Rather than being confronted with a fixed system of ideological representation, utopia would offer the mobility of a figure acting in a dialogical stage built by a complex fable-producing discourse.<sup>17</sup>

Most utopian fiction conceals this open spatial play under a codified, ideological signifier of unity and cohesion, which attempts to repress the historical and theoretical assumptions upon which the discourse is founded. Marin's notion of a pluralised



utopia is similar to Delany's own fictional attempts to reveal this play of meanings previously repressed by the closed systems of authoritarian science fiction.

The basis of Delany's science fiction is therefore what he calls "Ambiguous Heterotopia" - the subtitle to *Triton* (1976) - as a rejection of the singular, prescriptive utopia, in favour of a more pluralistic, exploratory text. In his essay, "Critical methods/speculative fiction" (1969), he rejects the various moral and ethical programmes argued for in previous fictional models of future societies, which conform to the simple bipolarity of utopia or dystopia. Writers such as Bellamy, Wells, Huxley and Orwell are considered to "exhaust themselves by taking sides in the terribly limiting argument" of whether the social organisations in their novels are "good" or "bad." This matter is for Delany purely one of "personal preference," predicated upon "splits in temperament, not a logical division at all."<sup>18</sup>

This moral relativism informs a more complex fiction that refuses the secure linearity of a single, rhetorical point-of-view. Delany thereby challenges the authoritarian nature of many science fiction texts, in which blueprints for social engineering are presented with didactic clarity and simplicity of diction. On the other hand, his moral relativism, his reluctance to "take sides," tends to show a liberal complacency, predicated on a notion of politics as an ideal contract freely entered into, that simplifies issues of power and exploitation. In Delany's fiction, total libertarian permission can include permission for totalitarianism, sadism and violence.

Delany delineates four basic fictional myths of the future, none of which is for him necessarily preferable to any other. There is the "New Jerusalem" myth, in which technological advances allow for the control and mastery of the natural world for the benefit of all humanity; the myth of "Arcadia," a largely agrarian utopia, in which the human and the non-human live in non-exploitative harmony; the "Brave New World," in which technology has brought material advancements at the price of the impoverishment of the real quality of life; and the "Land of the Flies" myth, an uncontrolled landscape of terror, superstition, violence and disease.

The "modern" works of science fiction advocated by Delany break out of these singular categories. Instead, they may contain all these mythic views of the world in procesual interaction and mutual conflict:

In most truly Utopian of New Jerusalems, sometimes you will find yourself in front of an innocuous-looking door; go through it, and you will find yourself, aghast, before some remnant of the Land of the Flies; in the most dehumanized Brave New World, one evening as you wander through the dreary public park, sunset bronzing fallen autumn leaves will momentarily usher you into the most marvelous autumn evening in Arcadia. Similarly, in either Arcadia or the Land of the Flies, plans can be begun for either Brave New World or New Jerusalem.<sup>19</sup>

For Delany, modern science fiction takes place within the "protean parameters" of "infinitely multiplied worlds." Single authorial point-of-view thus disappears in a multiple, open process of exploration, in which "the author's aim is neither to condemn nor to condone, but to explore both the worlds and their behaviors for the sake of the exploration." The modern text opens up a space in which the reader can manoeuvre, avoiding simplistic solutionary programmes



for the future, and refusing to fix the reader within a totalising moral position:

Because all four visions are offered in the best modern s-f, no single one is allowed to paralyse us with terror or lull us into muddle-headed euphoria.<sup>20</sup>

It is this complex, ambivalent landscape between terror and euphoria that is speculated upon in Delany's own fiction.

Nevertheless, to discover a moment of individual Arcadia in the parks of the Brave New World is a survival tactic that should not obscure the complex power networks that sustain the Brave New World itself. To analyse Delany's moral relativism, and his criticism of the singular utopias, more closely, his work may be considered as part of the liberal or libertarian re-examination of political alternatives in America since the Second World War. One of the central texts of such investigations is Robert Nozick's *Anarchy, State and Utopia* (1974).

Nozick designs a political model to reconcile utopian thought with possibilities for process and change, thereby avoiding the dangers of static, bureaucratic totalitarianism that ruined earlier statist utopias, such as Bellamy's. Nozick categorises such utopias in two ways, as "imperialistic" utopianism, which uses force to relocate human beings within a single community, and "missionary" utopianism, which attempts to convince them to accept the utopia voluntarily. Both of these political strategies depend on one group or individual judging other human beings as corrupt. As Nozick puts it, "That my best world is not yours will seem to some to show the corruption and degeneracy of at least one of us."<sup>21</sup>

Nozick wishes to supersede these singular utopias, based on force or persuasion, by a pluralistic utopia based on a liberal notion of free contract, as a means of respecting individual desires. Accordingly, dissent and change become a vital part of Nozick's programme:

Imagine a possible world in which to live; this world need not contain everyone else now alive, and it may contain beings who never actually lived. Every rational creature in this world you have imagined will have the same rights of imagining a possible world for himself to live in (in which all other rational inhabitants have the same imagining rights, and so on) as you have. The other inhabitants of the world you have imagined may choose to stay in the world which has been created for them (they have been created for) or they may choose to leave it and inhabit a world of their own imagining. If they choose to leave your world and live in another, your world is without them. You may choose to abandon your imagined world, now without its emigrants. This process goes on; worlds are created, people leave them, create new worlds, and so on.<sup>22</sup>

In this way, behaviour deemed objectionable in one group will be tolerated in those groups who have freely chosen it:

in a free society people may contract into various restrictions which the government may not legitimately impose on them. Though the framework is libertarian and laissez-faire, *individual communities within it need not be*, and perhaps no community within it will choose to be so. Thus, the characteristics of the framework need not pervade the individual communities.<sup>23</sup>

Nozick's programme depends on a "metautopia" to guarantee the independence of the smaller utopias, producing a society in which "people are at liberty to join together voluntarily to pursue and attempt to realize their own vision of the good life in the ideal community but where no one can impose his own utopian vision upon others."<sup>24</sup>



One problem for such a political theory, as Nozick admits, is the extent of centralised, state control in the metautopia necessary to guarantee the rights of each decentred community. Another problem is the liberal idealism of such explorations, predicated as they are on liberal assumptions of rationality and choice, based on a notion of an ideal social contract freely entered into by rational individuals. As such, issues of power, exploitation, control and irrationality in actual societies are elided.

Moreover, these ideas also presuppose the availability of a constant supply of geographical space to move into. A new frontier will always be required. This is perhaps the specifically American character of Nozick's vision of future possibilities. Ultimately, Nozick's dreams repeat the typically American myth of a new beginning, of a perpetually renewing Eden, which also dominates earlier utopian thought. Nozick admits that, "Sitting down at this late stage in history to dream up a description of the perfect society is not of course the same as starting from scratch."<sup>25</sup>

The economist David Friedman finds an apparent solution to this problem in the colonisation of outer space, as reported in David Graham and Peter Clarke's *The New Enlightenment* (1986):

some centuries hence, when we will have learned to construct space stations and anchor these new habitats at the so-called Lagrangian Points in the earth-moon system (where a body placed in a stable orbit will remain forever), or even further off in the asteroid belt... The economist David Friedman says he got the idea for a perfect 'anarcho-capitalist' society from Robert Heinlein's *The Moon is a Harsh Mistress*. If Heinlein could imagine it, who could say it was not possible in a space habitat where you were free to start a new society without any limiting conditions. 'We need more separate spaces to accomodate our diverse and various needs,' says Friedman.<sup>26</sup>

"Anarcho-capitalism" perhaps describes Samuel Delany's own "ambiguous heterotopias," in which a similar concern is shown for libertarian freedom predicated on assumptions of unlimited growth, and of needs as given and inevitable, rather than as socially-constructed. The rest of this chapter will discuss this play of moral relativism and liberal pluralist politics in Delany's *Stars in My Pocket Like Grains of Sand* (1984). In this novel, libertarian permission becomes a strategy of survival in a technocratic society, where capitalist spectacle is both resisted and desired. Delany's ambiguous, relativistic handling of issues of technology and power may be prefaced with critical statements made by C. Wright Mills and Lewis Mumford.

In a capitalist system that is perfecting its alibis of beneficence, the problem of freedom for Mills in *The Sociological Imagination* becomes the problem of the "cheerful robot." It has become evident that "all men do not naturally want to be free; that all men are not willing or not able, as the case may be, to exert themselves to acquire the reason that freedom requires."<sup>27</sup>

In *The Transformations of Man*, Lewis Mumford has similar dystopian fears:

In time, the human beings necessary to run post-historic culture will be provided at birth with built-in responses, subject solely to external controls: a more economic alternative to the wasteful methods now applied by the political commissar and the commercial advertiser. Under post-historic incentives, frontal lobotomy may be as widely performed on children, to ensure docility and encourage autonomy, as tonsillectomy now is.<sup>28</sup>

These critical positions on electronic technology and power differ markedly from those explored in Delany's novels, in which the global



culture of modern communications becomes a scene of amoral  
fascination, and where such dread co-exists with euphoria, pleasure  
and a desire for spectacle. Delany's texts present contradictory  
tendencies, in keeping with his notion of a multiple, open science

Thus the previous quotation shows Delany's man-machine working on a "line" producing mass production goods, like a model worker for Henry Ford, or Frederick Taylor's Schmidt. The invention of neural plugs, from this point of view, implies a continuation of the industrial organizational methods of the twentieth century. Moreover, the power relations of industrial society appear to be unchanged. For example, workers' control over the choice of objects being produced remains untouched. Moreover, as Andrew Gordon puts it in his essay on *Nova*, "If one man operates an entire factory, what happens to all the laid off workers?"<sup>31</sup>

Similarly, old hierarchies of power and obedience persist on the spaceship *Roc*. The autonomy seemingly guaranteed to workers by the cyborg technology does not prevent Captain Lorq calling his crew his "puppets," as cyborg studding is carried out "under the Captain's orders," within existing hierarchies of military organisation.<sup>32</sup>

So twentieth century hierarchies of prestige and power apparently still apply. Before joining the crew of the *Roc*, Katin had drifted between a number of small-scale jobs, as a "glorified file clerk," a phrase that does not suggest that libidinal satisfactions are distributed equally in this technological utopia. Moreover, Mouse is advised by a girlfriend to get neural plugs fitted so that he can enter the employment market:

You'll get them eventually somewhere, and you might as well get some education on how to use them for something other than a factory job. You like to travel. Might as well run the stars as operate a garbage unit.<sup>33</sup>

The novel also complicates its utopian scene with evidence of political control and repression. The gypsies on Earth who resisted the insertion of plugs because, as Mouse says, "We never wanted



them,"<sup>34</sup> are run out of town, and sometimes brutally killed. The gypsies reveal tensions within processes of socialisation, and struggles over definitions of progress, thereby providing anomalies which the novel does not attempt to resolve or appropriate.

*Stars in my Pocket Like Grains of Sand* is also a pluralist utopia, or "ambiguous heterotopia," which similarly dramatises a play of relativistic moral evaluations, within a context of survival in a world of electronic extensions of the human body. As in *Nova*, an ambiguity is set up between individual autonomy and choice, on the one hand, and an engineered slave-mentality on the other. Like cyborg-studding, the brain operation "Radical Anxiety Termination" is presented as a morally ambiguous invention, placed within a shifting context of differential cultural expectations.

For the meanings attributed to Radical Anxiety Termination change, according to time and to cultural circumstances. Japril explains that, at a certain point in the history of the planet Jesper, the technique emerges as a "medical method of dealing with certain social intractables."<sup>35</sup> However, the operation is also presented in other moral contexts, according to which Japril evaluates it as beneficent. It emerges on Rhyonon as a "political rite," and then as "an extremely violent art form" which gained great social prestige, before returning "as a gesture of public philanthropy."<sup>36</sup> This is the set of interpretations within which Korga volunteered for the treatment in the novel's Prologue. He had been offered, in Japril's words,

by a benevolent society, a chance at what had been up till recently, on his world, the *ave atque vale* of artists and priests: the chance to have the paths in the brain through which worry forced us to grow closed over forever and

detours about those troublesome crossroads left permanently open.<sup>87</sup>

Characteristically, Japril's language of control, with its alibi of beneficence, is not directly countered or criticised in the novel. However, Mark Dyeth replies to Japril with an ambiguous gesture: he raises his chin, which is "a sign to continue in the language spoken in the west of Japril's home world," but "in many languages of many others, communicates negation and/or doubt." Delany's text thus suggests the existence of plural, flexible moral positions, and multiple interpretations of signs. In this way, the novel does not present a moral prescription or message about desirable or undesirable future possibilities, but rather explores a play of relativistic differences.

Because of this pluralism, questions of totalitarianism and exploitative power tend to be elided. The major ambiguity centres on conflicting evaluations of "The Web," the "interstellar agency in charge of the general flow of information about the universe in many places."<sup>88</sup> This is a monolithic data bank containing an electronic encyclopaedia of all the known facts about the universe, to which instantaneous access is permitted under the system of "General Information" ("GI"). This system of instant data retrieval is based on a technological extension of the human nervous system similar to the "neural plugs" which allow "cyborg-studding" in *Nova*. Here, the operation is that of "individualized synapse tailoring," a sort of designer-brain, in which state surgeons insert neural receivers and transmitters into the top five vertebrae of children, thereby enabling them to use "mentally-activatable equipment."<sup>89</sup>



Like "cyborg-studding" in *Nova*, these techniques are evaluated ambivalently. Accordingly, Delany's fascination with the potentiality of such technologies shifts his science fiction away from the unequivocal condemnations of coercive control in, for example, Crichton's *The Terminal Man*. In Delany, the consent to mind control shown by Craig Beckerman, in his desire for addiction to electricity as "the biggest kick of all,"<sup>40</sup> is stripped of its unambiguously negative implications. In so doing, he perhaps confirms C. Wright Mills' fears that, within a system that is perfecting its alibis of beneficence, obedience becomes second nature, and freedom itself is no longer desired.

In *Stars in My Pocket Like Grains of Sand*, instantaneous data retrieval has positive connotations, in terms of Enlightenment programmes of education and democracy. As in *Tron*, information is considered as magical potential, acting at a distance. On Rhyonon, a metallic glove gives Korga access to a data bank of information, an experience which he evaluates as an exciting and progressive development, replacing the internalised repression of his upbringing:

The new condition was not so much an alternate voice loud enough to drown the voices of childhood as it was a web, a text weaving endlessly about him, erupting into and falling from consciousness, prompting memory and obliterating it, that was simply more *interesting* than the drumming voice asserting or denying ignorance or knowledge.<sup>41</sup>

The "web" image here suggests the open, productive potentiality of weaving, creating differentials and distinctions like a written text.

The monolithic technology of General Information is described with similar enthusiasm:

if you want to know something - anything, anything at all! - all you have to do is *think* about it, and the answer pops into your head. That's supposed to be how it works.<sup>43</sup>

However, these evaluations of the beneficent and productive side of the system of instantaneous information provided by the Web are countered by hints of the Web as repressive limitation and closure. In this context, it is the breaking of the web-enclosure that becomes a positive value.

Accordingly, the Web officials are known as "Black Widows," an image which suggests murderous duplicity, rather than beneficence. Moreover, as a total surveillance system, in which, as Japril tells Mark Dyeth, "you know that the one thing we know is just how much you know about practically anything,"<sup>43</sup> the Web circumscribes the amount of information to which it allows access. After the planet Rhyonon is destroyed, all information about it is made unavailable; Mark is threatened that, should he put in a request for data about the planet, "your security status automatically changes in your Web-dossier to one that, even if it doesn't get you killed, will probably make your professional life difficult, to say the least."<sup>44</sup> In this way, the Web appears in a more dystopian context, as a highly sophisticated technical system of totalitarian control, in contrast to the suggestions elsewhere in the novel of its beneficent, educative role in people's lives.

By refusing to unequivocally condemn the power arrangements he has invented for his fictional society, Delany explores Faustian permissions with an openness, or a complacency, that contrasts sharply with more anxious criticisms of hubris in the texts of



writers such as Crichton, and nineteenth century figures such as Poe, Hawthorne and Melville.

Thus in the essay "Critical methods/ speculative fiction," Delany asserts that, "Not only can the human animal behave in any way, the human psyche can approve or disapprove of any behavior (as) laws of human nature are not universal..."<sup>45</sup> Underneath Delany's libertarianism, then, there is an evolutionist assumption of human adaptability to environmental change. Human beings, it is implied by Delany's science fiction, can adapt to anything. As in B.F. Skinner, survival thus becomes the ultimate criterion of value. In such a Darwinian context, totalitarianism becomes merely one option among others, no more nor less preferable. Delany's presentation of a complex and conflictual text, in which the reader is invited to consider moral, political and ethical implications relatively free from the direct intervention of an authoritarian-authorial voice, becomes an examination of survivalist tactics in highly controlled and technological societies. Such survival may consist in an amoral fascination with the spectacle, rather than in direct opposition to it.

Accordingly, in *Stars in My Pocket Like Grains of Sand*, when Mark Dyeth is threatened with death if he tries to bypass the informational blackout imposed on him by the Web, his first response is not one of anger or resistance, but of fascination with the technological means by which the blackout was effected. The "run-around circuit" which prevents him gaining information is, he says, "really quite clever." He continues:

They're frowned on by the Web but sometimes are necessary with information the kind of commodity it's become.<sup>46</sup>

The tone of voice is a calmness that verges on complacency, the dull tone of mechanical operationality, familiar in science fiction, that confirms Norman Mailer's "horror" at the paucity of reverberation of events in modern technological society, as discussed in chapter 14.

As well as fascination with the spectacle, survival is found in the apparent margins of the social, in appreciating the rare places that drift out of the Web security system. Such a place is Free-Kantor, where, as Clym confides with Mark, "Isn't it nice to know nothing you say here will be used against you?"<sup>47</sup> Free-Kantor is a "free data-transfer point"<sup>48</sup> in which information is stored in "macro-encyclopedias - encyclopedias of encyclopedias!"<sup>49</sup> Yet for Mark Dyeth, this concentration of information and knowledge in a single centre only confirms feelings of ignorance and uncertainty. Accordingly, he experiences "disorientation":

here I was in the center of the night - which now, while the water bobbed slowly over the huge, plastic sheets, changed to the conviction that, lost in darkness eternal, I was (at least for the moment) nowhere at all!<sup>50</sup>

The existence of such regions of unknown and unknowable experience disrupts the ambitions of the General Information system for total interpretation and signification, and promotes thereby ambivalent emotions of terror and euphoria.

As the securities of informational codification break down in this way, the universe is opened up for a freer play of meanings. Survival in Delany's totalitarian informational society thus consists in asserting private individual experience outside imposed systems of signification. In the Epilogue, Mark Dyeth reveals the multiple significations he is able to attach to the concept of "Mornings." Mark explains: "You see, besides the co-ordinates the



Web lays out for us, I have my own map of the universe."<sup>51</sup> As the totalising web of information technology changes sensory perceptions, it paradoxically releases a new mental environment:

The more we come to rely on GI, the more our daily consciousness becomes subservient to memory's wanderings...<sup>52</sup>

Personal experience, although merely locked into the repetitions of memory, is nevertheless seen as incommensurable with the controlled information imparted by the Web, and is thus valued as a survival tactic. Mark Dyeth travels between a multiplicity of planets, experiencing the disorienting, relativistic and differential nature of space as pleasure and fascination, beyond the boundaries of codification and of imposed perceptual habits:

To arrive on a world at dawn, despite GI's preliminary scatter of information, is to read the whole roster of signs you are used to for morning over the expanse of what you see, and at the same time see those meanings start to transpire as one begins to see the possibilities - a world of possibilities - clear behind them.<sup>53</sup>

Individualist survival is possible for Delany in the interstices and margins of the social. Such aesthetic pleasure in what is seen as private experience counters the public, utilitarian mechanisms of the Web. Mark discovers his own information,

some of it logical, some of it mythical, some of it in error, and much of it, yes, no doubt merely wrong or right. But it's information beautiful yet useless to anyone but me, or someone like me, information with an appetite at its base as all information has, yet information to confound the Web and not to be found in any of its informative archives.<sup>54</sup>

Survival is predicated on a liberal myth of the "margins" as a place of freedom, apparently beyond the determinations of centralised power.

Yet such thinking may ultimately be seen as supportive of the status quo, in that the "margins" are themselves part of the wider social network of power, and parasitical upon it. This conservative element in Delany's novel can also be seen in its conformism with the dominant myths of "electro-magic" that, as chapter 15 shows, form an important basis of technocratic mythologies. In *Stars in My Pocket Like Grains of Sand*, personal survival is a function of this establishment myth of electronic technology as a new form of mesmeric control and omnipotent fantasy. In the novel, space and time, manipulable by "mentally activatable" technology, are transformed into multiple, protean forms, replacing linear perspective with the cool, interactive, involving space-time of electronics. The city of Morgre is an index of the potentialities for magical control extrapolated from the invisibility and speed of instantaneous communication.

As in Jack Williamson's *The Humanoids*, taken to represent a wide field of science fiction, teleportation redesigns space and time. As Mark enters the underground house belonging to Santine, the inside of the house is instantaneously transformed into an outside scene in the hills several kilometers away: "At the horizon was Morgre, in which I had been only seconds before."<sup>55</sup> Mark's own room is similarly in two places at once. This shifting environment recalls the magical space-time of the "Gödelian" universe described in *The Einstein Intersection*, a multiple dislocation of the homogenous, unitary space-time which since the Renaissance has been the fixed, panoramic view of power. Like William Gibson's image of cyberspace, the city of Morgre is a procesual and undecidable environment, where



geometric spaces explode and implode into spaces of play. There is therefore no complete, final image of the city, nor of Mark's house: "Dyethshome is an archive of mentally activatable intricacies scattered about five courts, and nobody knows them all."<sup>56</sup>

The landscape is relativistic, as polar distinctions between positive and negative, claustrophobia and vertigo, terror and euphoria, break down in the neutral light of fascination:

"It's always been a strange place for me," Santine said affably. "With a whole seven layers of city hanging above you in the dark, sometimes women here will be hit with intense claustrophobia. Yet standing on the upper level of the apartment ring, looking over the broken tiers of the million-year-old amphitheatre to the skene nearly two hundred meters down... many also experience sudden vertigo. As a young woman, I recall coming here and going from one to the other in the space of seconds."<sup>57</sup>

The paradoxical, multiple spatial operators of the world described in Delany's fiction dissolve the real into the hallucinatory. His characters seek means of survival within this society of the spectacle, engaging in a fascination that may be seen to substitute a Narcissistic myth of survival for a Promethean myth of politics.

The narcosis and numbness of this world recalls what Jean Baudrillard calls the "cool" "ecstasy of communication," that has replaced the "hot" public sphere in which political power has been contested:

Something has changed, and the Faustian, Promethean (perhaps Oedipal) period of production and consumption gives way to the "proteinic" era of networks, to the narcissistic and protean era of connections, contact, contiguity, feedback and generalised interface that goes with the universe of communication.<sup>58</sup>

When Korga takes off the electronic rings that connect him to the data retrieval network, that is, when he choses to stand outside the official system of mediation, Mark Dyeth feels "Numb terror" in

which "what numbed finally sent the terror itself below perception's limen."<sup>59</sup> In Delany's science fiction, there is this desire to be both inside the mass media, and also in a world of private experience apparently outside the co-ordinates of spectacular, controlled perception. The fascination of this double play is Delany's version of so-called "post-political" survival techniques.

Yet seduction by the spectacular image, in Delany and Baudrillard, tends to obscure the workings of power relations in modern society. Writing in connection with Jean-Luc Godard's explorations of the workings of power in the images produced by the electronic mass media, Colin MacCabe relocates the capitalist spectacle in terms of power relations, exploitation and politics:

The objects which the image presents to us and to which our only relation can be that of possession necessarily represses our being, our situation in the world. The libidinal investment in the image, an investment on which the economic investment turns, is profoundly narcissistic, an avoidance of the problem of the other. Our acquiescence in this pleasure is bought at the cost of ignoring the conditions of existence of the image, conditions from which we suffer every day.<sup>60</sup>

Similarly, for Paul Virilio in *Pure War* (1983), survivalist rejections of a wider politics for the ecstasy of communication are born out of despair, and are ultimately programmes for the preservation of the status quo. Virilio senses that, as duration dwindles in an age of instantaneous communication, so do the possibilities for politics, in that, "Democracy, consultation, the basis of politics, requires time."<sup>61</sup> Nevertheless, Virilio seeks to restore politics to modern society, and is accordingly more critical than Baudrillard of the ramifications of the mass communications media:



All current technologies reduce expanse to nothing. They produce shorter and shorter distances - a shrinking fabric. Now, a territory without temporality is not a territory, but only the illusion of a territory. The field of freedom shrinks with speed. And freedom needs a field. When there is no more field, our lives will be like a *terminal*, a machine with doors that open and close. A labyrinth for laboratory animals.<sup>62</sup>

Like Lewis Mumford and C. Wright Mills, Virilio is concerned about the way in which instantaneous electronic media are destroying the public domain in which political power may be negotiated. He does not succumb to the seductions of a mystificatory electro-magic, or give permission for survivalist fascinations with submission to control. The laboratory animals at the end of the terminals, in the above quotation, have none of the duplicity that Delany provides for "cyborg-studding" and "Radical Anxiety Termination."

This chapter has shown how issues of power and control are handled ambivalently in Samuel Delany's fiction. Nevertheless, his plural texts explore strategies of both resistance and adaptation to modern society, and this innovative use of science fiction as an "ambiguous heterotopia" counters the drive towards totalitarian singularity in orthodox utopian science fiction texts.

The following chapters will explore issues of resistance to totalitarian singularity in the work of more contemporary American fiction writers.

CHAPTER 18.

William Gaddis.

This chapter will consider the recent novels of William Gaddis as constructing epic narratives that examine the ambivalent possibilities of drift within systems, and strategies of survival within a highly technological society.

*JR* (1975) explores intersections of capitalism, technology, art, law and education in contemporary America. Physics teacher Jack Gibbs, whose name recalls that of J. Willard Gibbs, an early contributor to information theory in physics, is obsessed with the concept of entropy as the leaking away of energy from a closed system. He sarcastically explains to his class that the school curriculum is so over-organised as to be entropic. Knowledge has been reduced to information for testability:

Since you're not here to learn anything, but to pass these tests, knowledge has to be organized so it can be taught, and it has to be reduced to information so it can be organized do you follow that? In other words this leads you to assume that organization is an inherent property of the knowledge itself, and that disorder and chaos are simply irrelevant forces that threaten it from outside. In fact it's exactly the opposite. Order is simply a thin, perilous condition we try to impose on the basic reality of chaos.'

Gibbs' insight, that disorder and chaos are necessary aspects of order, is a vital advance on notions of deterministic order. Yet, ironically, his own life and work suffers from entropic chaos and decay.

Gibbs is writing a book on the reduction of knowledge to information in art, believing that the transformation of America



into a commercial, utilitarian culture has placed severe difficulties on the creative artist. Consequently, he pessimistically and simplistically views industrial technology as wholly destructive of human potential.

Gibbs' book locates the turning point for art, and music in particular, in 1920, with the invention of the pianola. This he sees as the Ford Plan applied to music. An automated machine for producing piano music through information stored on punch cards, the pianola is a machine for perfect reproducibility. As a result, the fallible human pianist is automated out of existence; hence the famous phrase heard in bars throughout America in the 1920s, "Don't shoot the pianist, he's doing his best." For Jack Gibbs, "that phrase doing his best, (is) redolent of chance and the very immanence of human failure that century of progress was consecrated to wiping out once and for all." Chance and failure, as signs of the "human," are excluded by the rigid logic of mechanisation. Gibbs extends his analysis to a general levelling down of quality into quantity as a consequence of industrial mass production. Quoting Henry Ford's famous dedication to utility and progress, he sees the pianola "open the arts to Americans for democratic action and leave history to bunk."<sup>2</sup>

Henry Ford and Frank Woolworth consolidate this process of capitalist democratisation, making available commodities for mass consumption, at the price of subjugating human beings to the sacrifices of energy expended in their production. For Gibbs, this is flying in the face of Aristotle's adage that "to be always seeking after the useful does not become free and exalted souls."

The modern atmosphere of "constant turmoil" is ultimately destructive of the "musical faculty," of the "exquisite and delicate sensibility" on which the creation of art depends. The "symmetrical motion of those great wheels (of industry) homogenizing their difference" organises a passified society around the dictates of industrial production.<sup>3</sup>

In Gibbs' account, this organization of society is entropic, in that human energy is dissipated through a process of over-ordering that wastes the energy of chance and difference. However, entropic wastage extends to Gibbs' book itself, the writing of which is persistently interrupted, so that it exists only in incoherent fragments. Gibbs complains that he has "no God damned energy," that "energy is leaking everywhere," as his book remains unfinished, a further instance of the entropic processes it is trying to discuss.

Edward Bast similarly struggles to create his own music, seeking to innovate within the repetitive structures and easily consumable clichés demanded by capitalism, where "time is money money's the..."<sup>4</sup> Yet it should be said that Gibb's claim that, in the "noisiest country that ever existed," "such constant turmoil must ultimately be destructive of the musical faculty," fails to take into account the creative possibilities for art presented by electronic technology. John Cage and Milton Babbitt, and many others, have used computer technology to create music, while Conlon Nancarrow has written pieces for the pianola.<sup>5</sup>

Moreover, the despair of Bast and Gibbs at the commodification of art is mitigated by the very existence of Gaddis' *JR* itself. *JR* fulfills Gibbs' desire to make a book as "Difficult as I can make



it,"<sup>6</sup> in order to subvert the easy transparency of commodity consumption. The reader is invited to participate in ordering the book, an order that is not allowed to become total. All the pieces will not fit together. *JR* is therefore in itself a confident reply to Gibbs' complaint: "Ask them to bring one God damned bit of effort want everything done for them."<sup>7</sup>

The act of reading the novel is itself an enactment of the process of imposing a "thin, perilous condition" of order onto a massive amount of information. In this way, the sheer size and complexity of the novel disallows the over-rigid control of energy that the novel itself sees as one of the most destructive elements in American society. *JR* guards those incomplete, uncontrollable elements that are indispensable to a truly dynamic and healthy conception of order. Moreover, the virtuosity and energy of Gaddis' prose belies Gibbs' doomy view of the impossibility of art in modern industrial society.

In *JR*'s 726 pages, there are no chapter or even paragraph divisions. The text is an uninterrupted flow of mostly direct speech, with an occasional bridge passage of descriptive prose. There is, therefore, no position of stasis or security for the reader, and no obvious places to stop reading. Gaddis has in this way not written a novel that can be easily consumed according to the requirements of capitalist commodity production. Whereas human time and energy in industrial society are largely divided into work, commuting and leisure, the sheer size and weight of *JR*, as a physical object, makes it less than portable, and therefore a difficult book to read while commuting, for example. The novel is an

act of resistance to the reductive compartmentalising of human life, presenting a fuller definition of democracy than that of quantitative uniformity. When Edward Bast is given a speed-reading course to help him get through the accumulating mass of business information concerning the JR corporation, Gaddis' joke may well be on his reader.\*

The unmanageable, disorderly element in any system, including the interaction between writer, novel and reader, is for Gaddis a source of energy. Total clarity and pragmatic communicative competence, as discussed in chapter 14 of this thesis, are thus shown to be neither possible nor desirable. The lawyer Mister Cohen admits, at the start of the novel, that, "I seem to be having difficulty making myself clear."<sup>9</sup> Similarly, the interruptions, puns, verbal misunderstandings, crossed-lines, "red herrings and blind alleys"<sup>10</sup> of the novel destroy simplistic faith in monolinear systems. Modern electronic technology is thus not seen as a monolithic, rigidly inflexible system, but is instead riddled with random, unpredictable factors. Consequently, totalising conspiracy theories do not interest Gaddis in this novel.

*JR* may almost be seen as a commentary on McLuhan's statement that in an automated society, "all aspects of production, consumption, and organization become incidental to communications," so that the "abstract manipulation of information as a means of creating wealth is no longer a monopoly of the stockbroker."<sup>11</sup> In Gaddis' novel, the thirteen-year-old schoolboy JR is able to exploit the limitations and blind-spots of the electronic media of instantaneous information, to build up a multi-million dollar



business empire. A child of Horatio Alger, indoctrinated early into the business ethic, as mentioned in Jack Gibbs' book, JR's successful entry into the business world relies upon the limitations as much as to the possibilities of modern technology.

For example, JR talks through a handkerchief on the telephone, to make his voice sound lower and more adult. As a result, his telephone messages are obscure and give wide scope for misunderstandings. In the terminology of information theory, they are low in the redundancy necessary for efficient, noise-free communication. Given the speed, panic and suspicious assumptions on which capitalist competitiveness is based, JR's cryptic, largely ignorant messages are taken as hard-boiled business acumen. For Mr. Davidoff, JR "goes right to the gut issue and sends through a directive some of them so blunt almost sound simple minded hardly understand him on the phone half the time, spend an hour afterward putting the pieces together get the feeling myself sometimes he does the grunting and we do the work." But this is, after all, the "way the big boys think."<sup>12</sup>

The irrationality of the capitalist system's reliance on factors such as rumour, nervousness, confidence and caution, is shown to be not an aberration from the normal state, but the normal state itself. Moreover, the technology of the telephone itself reinforces entropic leakage within communication systems, by enabling business to be carried on without personal contact. As a result, the businessmen never meet JR, who is therefore immediately categorised as an elusive man, according to predictable business stereotypes.

When an unscrupulous newspaper fabricates an interview with him, his fictionalised character is further embellished.

It is this element of invisibility and action-at-a-distance in modern electronic technology, especially telephones and computers, that allows JR to make money:

I mean this here bond and stock stuff you don't see anybody you don't know anybody only in the mail and the telephone because that's how they do it nobody has to see anybody, you can be this here funny lookingest person that lives in a toilet someplace how do they know, I mean like all those guys at the Stock Exchange where they're selling all this stock to each other? They don't give a shit whose it is they're just selling it back and forth for some voice that told them on the phone why should they give a shit if you're a hundred and fifty all they...

... I mean it's just different electric numbers on these checks and all which this computer reads them it doesn't give a shit if you're three years old just if the money's there...'<sup>13</sup>

Most of the novel is made up of interrupted telephone calls, often with several calls being made simultaneously. This is, in terms of information theory, the noise of entropic decline, yet in Gaddis' novel it is paradoxically a source of energy, as the discontinuous rhythms of everyday speech, disrespecting linear logic, provide the novel's fundamental dynamic.

Gaddis' reinterpretation of entropy and information theory in terms of paradox and unpredictability suggests Ilya Prigogine's work in non-equilibrium thermodynamics, in which "nonlinearity, instability, fluctuations" in open physical systems are not merely superfluous noise, but are crucial elements in a dynamic conception of order.<sup>14</sup> JR suggests the need for open structures, which include chance, randomness, paradox and errors, as vital counter-strategies to the homogenising, mechanising system of American capitalism.



Yet Gaddis' reformulation of entropy theory is ambivalent, as his work enters an area of survivalism within a drifting, uncontrollable system that recalls the pessimistic nostalgia of Thomas Pynchon. In *Gravity's Rainbow*, the Great Serpent in Kekulé's dream, which suggests for him the shape of the benzene molecule vital to the future development of the plastics industry, becomes a signifier of a Fall from an original state of paradisaal nature. History is for Pynchon a linear violation, through science and technology, of this initial state of plenitude. This "new serpent in our ruinous garden" means "No return, no salvation, no Cycle."<sup>15</sup> Moreover, the "System" that violates the "Cycle" of an "eternally returning" universe is subject to entropic decline. It "sooner or later must crash to its death, when its addiction to energy has become more than the rests of the World can supply, dragging with it innocent souls all along the chain of life."<sup>16</sup> The religious tone of Pynchon's vocabulary - "innocent souls," "chain of life," etc. - reveals a nostalgia for an original state of continuity and totality, as well as a sense of tragic inevitability imparted to history.

William Gaddis succumbs less to this nostalgia for an original "nature," as his comedy faces technological disruptions less squeamishly than in Pynchon. In *JR*, technology has itself become second nature, so that JR thinks that the animal, the impala, is named after the car, rather than vice versa.<sup>17</sup> In Gaddis, this disruption is not an area of unmitigated dread, but is rather an area of black comedy. Moreover, whereas the comic scenes in Pynchon's work are episodic, and comedy is seldom allowed to disturb

the tragic tone of his explorations into technology, politics and religion, such as the extract quoted above, in Gaddis' novels comic disruptions are widespread, destroying the hold of nostalgia and desires for fixity that characterise Pynchon's epic constructions.

Nevertheless, Gaddis' comedy occasionally does include a sense of despair at the possibility of universal entropic decline, as he explores strategies of survival within an uncontrollable environment. In *JR*, the irreversible, linear arrow of clock-time is anthropomorphised as deliberately vindictive:

For time unbroken by looks to the clock the only sound was the chafing of an emery board, and the clock itself, as though seizing the advantage, seemed to accomplish its round with surreptitious leaps forward, knocking whole wedges at once from what remained of the hour.<sup>18</sup>

The religious basis of such dread is summed up in Jack Gibbs' fear that the world may indeed be "God damned."

This sense of entropic decline as a universal unconditional makes the existence of politics problematic in Gaddis, as political strategies are themselves subject to entropic exhaustion. In his drunken despair, Gibbs affirms the need for revolutionary change: " - I mean sometimes there are situations that just don't seem to have any solution in their own context do you, do you see what I mean? And the only way to, the only thing to do is step in and change the whole context..."<sup>19</sup> However, the chances for such radical change in Gaddis are slim. The possibilities of non-conformism and rebellion in the movements of the 1960s have declined into a sense of desperation, exhaustion and loss. Mere survival is now difficult enough. *JR*, like Paul in *Carpenter's Gothic* (1985), tries to be successful in terms of the present capitalist system, as the more



radical attempts to innovate and create, made by Jack Gibbs and Edward Bast, end in failure. Moreover, despite the damage created by JR's foray into big business - the market collapse, ghost towns, flouted Indian land rights, and subsequent cover-up - capitalist dynamics are renewed and continue at the end of the novel. There is no sense of closure or solution, nor of radical change. Instead, the novel ends with JR's voice on the telephone, saying that he has "this neat idea hey, you listening? Hey? You listening...?"<sup>20</sup>

In *Carpenter's Gothic*, Gaddis further explores drift within both local and global systems. As in *JR*, technological speed induces panic, and the novel follows a growing complexity of events, as they slip out of human control. Though Gaddis names the names of the controllers, the businessmen and Christian missionaries who manipulate others, the situation escalates beyond even their ability to control it.

Communicational acts, by telephone, mail, television and newspaper, again provide a constant assault on vulnerable human beings. Nothing functions according to utilitarian intentions. In the opening pages, Billy has already missed the toilet bowl, and urinated on the bathroom floor, and Paul's car has broken down. He then bangs his leg on the coffee table.<sup>21</sup> Such accidents occur throughout the novel as comic disruptions of order and functionality. As in *JR*, such drift is duplicitous, constituting a source of hopeful survival as well as of pain and struggle.

A Vietnam veteran, Paul tries to survive in the competitive system of American capitalism. But his attempts at planning and ordering his life are confounded by the complex and chaotic

multiplicity of events. Even sorting the mail is fraught with difficulties:

Look, Liz, we've got to get a system. At least you brought it in, good. Now there's got to be a place for it. If I'm going to get any kind of an operation going here we've got to get a system, I've got to know where the mail is when I walk in, you've got to get a pad there by the phone so I can see who...<sup>22</sup>

He draws a plan of action on a piece of paper, but the diagram is so complicated that McCandless mistakes it for a map of the battle of Crécy. Pauls' plan looks like a child's "scribbled mess."<sup>23</sup>

Liz similarly finds that domestic order is impossible to maintain. The vacuum cleaner is broken, and she is unable to understand the French cleaning lady, who breaks the ornamental china dog. Suffering from nerves and asthma, Liz seeks reassurance in a sense of security and order. She notices a newspaper headline:

LOSS OF \$412 MILLION,  
RECORD, REPORTED  
BY GENERAL MOTORS

yesterday's headline or the day's before, of no more relevance than than now in its blunt demand to be read, building the clutter, widening the vacancy, driving it elsewhere, anywhere, the still embrace of the armchair there beyond the hearth to flee even that for the front door's glass paneled symmetry.<sup>24</sup>

Liz desires stillness and symmetry to stabilize uncontrollable movement and universal loss.

The word "drift" occurs throughout the novel. The mailman appears in the early morning mist like "the drift of a figure being poled on water."<sup>25</sup> This drift is mostly identified with irreversible and uncontrollable processes in "nature," a drift to disorder given as a natural state of affairs. A lawn chair is overturned in the



"drift of discoloured leaves on the terrace,"<sup>26</sup> and as the year decays into autumn, drift occurs on a universal scale:

Out over the terrace the mist lay featureless as the day itself come into being and left adrift with no better than the clock to dispense its passage...<sup>27</sup>

Gaddis' falling cadences identify nature as a site of inevitable loss, disease and death, moving linearly towards equilibrium and indifference. Here the tragic tone recalls Pynchon's elegiac longer paragraphs:

... she'd stood there, maybe three or four times since she'd lived in the house, looking down on the greens of the lower lawn and the leaves before they'd cried out their colours, before they'd seized separate identities here in vermilion haste gone withering red as old sores, there bittersweet paling yellow toward stunted heights glowing orange in that last spectral rapture and to fall, reduced again to indistinction in this stained monotony of lifelessness at her feet where a dove carped among last testimonies blown down from somewhere out of reach, out of sight up the hill in its claim as a mountain, leaves of scarlet oak here and there in the blackened red of blood long clotted and dried.<sup>28</sup>

Against this situation, human beings enact desperate measures. Liz's desire for security is repeated in the old man who compulsively shovels dead leaves into a garbage can, in a futile attempt to reverse entropy. This yearning for security is fundamentally religious, a search for deliverance and salvation, as Gaddis' language suggests:

On the corner opposite, the old man from the house above bent sweeping leaves into a dustpan, straightened up carrying the thing level before him like an offering, each movement, each shuffled step reckoned anxiously toward an open garbage can where he emptied it with ceremonial concern, balanced the broom upright like a crosier getting his footing, wiping a dry forehead, perching his glasses square and lifting his bald gaze on high to branches yellow-blown with benisons yet to fall. She fled for the kitchen.<sup>29</sup>

McCandless enters the novel as the intellectual scourge of such ritual securities and superstitions. He is infuriated by the old man:

every time I'd look up, see him out there every time I looked up pretending he's doing something worth doing look at him, ten dead leaves in his damned dustpan he's still trying to prove he was put here for some purpose?""

Yet McCandless is himself shown to be a fraud, as the novel examines possible claims to security, order and confidence in modern America.

The house itself, like all the people in it, is similarly a fraudulent construct, a frail, derivative system imposed on chaos. It is, according to Lester, a "classic piece of Hudson river carpenter gothic": "All designed from the outside, that tower there, the roof peaks, they drew a picture of it and squeezed the rooms in later..." As McCandless explains,

it was built to be seen from outside it was, that was the style... yes, they had style books, these country architects and the carpenters it was all derivative wasn't it, those grand Victorian mansions with their rooms and rooms and towering heights and cupolas and the marvelous intricate ironwork. That whole inspiration of medieval Gothic but these poor fellows didn't have it, the stonework and the wrought iron. All they had were the simple dependable old materials, the wood and their hammers and saws and their own clumsy ingenuity bringing those grandiose visions the masters had left behind down to a human scale with their own little inventions, those vertical darts coming down from the eaves? and that row of bull's eyes underneath?... - a patchwork of conceits, borrowings, deceptions, the inside's a hodgepodge of good intentions like one last ridiculous effort at something worth doing even on this small scale, because it's stood here, hasn't it, foolish inventions and all it's stood here for ninety years... It's like the inside of your head McCandless...""

The American talent for bricolage, for making-do, has produced an structure that has survived, yet is a derivative repetition and a deception. *Carpenter's Gothic* examines such inherited structures that have expired, or are persisting as dangerous archaisms.



Thus the Reverend Ude is still repeating the fatal old narratives, building yet another Church, one more imposition of American carpenter's gothic. Though McCandless appears at first as an authoritative spokesman against these damaging, archaic forces, by the end of the novel his own position has been undercut, and he is shown as a cynical, fatalistic, irresponsible fraud, a patchwork of "conceits, borrowings, deceptions" like his house itself.

McCandless connects Christianity with a history of war and sacrifice that continues with the present exploitation of Africa for mineral wealth by multinational companies. In this bloody context, Enlightenment ideas of rationality and education have failed:

talk about a dark continent I'll tell you something,  
revelation's the last refuge ignorance finds from reason.  
Revealed truth is the one weapon stupidity's got against  
intelligence and that's what the whole damned thing is all  
about...<sup>34</sup>

In the name of "reason," McCandless criticises the ignorance and stupidity of Christian fundamentalists, who censor books and teach creationism in schools. The liberal ideal of "academic freedom" in America has been turned into the freedom "to teach this rickety creationism."<sup>34</sup> As Paul puts it, on the telephone to Ude's son, "the US Constitution protects religious freedom, that's the right to enforce prayers in the schools you got that?"<sup>35</sup>

McCandless's own novel continues his discussion on the end of rationality in America. Lester paraphrases it back to him:

your Frank Kinhead raving about scratching the surface of  
reason and there's this void right under it aching to  
believe anything absurd, where he wants to give out free  
chess sets like they give out free Bibles for endless cheap  
entertainment, anything to fill the emptiness any invention  
to make them part of some grand design anything, the more  
absurd the better, magic, drugs, psychedelics, Pan Koo and  
the Tibetans' prayer wheels, the assumption of the Virgin

and the three secrets of Fatima, Moroni's golden tablets or just God, God, God...<sup>36</sup>

But McCandless is himself revealed as a fraud. Although he knows that the companies and politicians are fighting over land which is "nothing but bush," he deliberately withholds this information, allowing the situation to deteriorate into war, letting them "all go out there and kill each other over something that's not even there."<sup>37</sup>

In this way, McCandless' former position in the novel as an authoritative spokesman of reason and enlightenment is undermined, and he is revealed instead as cynical and fatalistic. Perceiving the global political situation drifting beyond control, McCandless' will decays into an abnegation of responsibility. People have been killing each other for two thousand years, he says,

and you think I could stop it? Go out to Smackover knocking on doors of those little frame houses and tell them there's been a big mistake? ... I told you, try to prove anything to them the clearer the proof and the harder they fight it...<sup>38</sup>

So Lester's evaluation of McCandless' novel as "mean and empty... like all the people in it" appears to be justified.<sup>39</sup> Moral drift has produced for McCandless a loss of will, and his subsequent collusion in global corruptive processes.

Liz comes to realize that McCandless' reasonings are driven by his own irrational fears and drives. She comes to understand,

That you're the one who wants Apocalypse, Armageddon all the sun going out and the sea turned to blood you can't wait no, you're the one who can't wait! ... because they, because you despise their, not their stupidity no, their hopes because you haven't any, because you haven't any left...<sup>40</sup>



McCandless fears and despises the simple techniques for survival and hope which some people invent to offset loss and pain. Liz includes herself among,

all these sad stupid, these poor sad stupid people if that's the best they can do? their dumb sentimental hopes you despise like their books and their music what they think is the rapture if that's the best they can do? hanging that gold star in the window if, to prove that he didn't die for nothing? Because I, because I'll never be called Bibbs again...<sup>41</sup>

Yet Liz's survivalist desire for security amid damage still does not save her from catastrophe, as she trips and falls to her death at the end of the novel. *Carpenter's Gothic* thus provides no possibility of secure bases in a local and global situation of chaos and deceptive order.

Only the skill and complexity of the novel itself offers a confident and non-fraudulent order. In this way, Gaddis' fiction presents counter-strategies to its destructive Oedipal narratives in the act of fictional creation itself. His novels avert despair without surrendering to simple solutions, by proposing their own art as genuine creation in a fraudulent, drifting society. Moreover, the epic necessities of Gaddis' plots are resisted by the fragmented way in which they are presented. Each novel has to be pieced together by the reader from fragments of interrupted conversations, so that the reader is invited to participate in the process of ordering the text. Gaddis therefore injects an actively democratic element into his epic, totalising narratives. The novels are open, complex systems that resist the entropies of over-organisation, and the manias of technocratic society that constitute their material. At the same time, Gaddis provides insights into the survivalist appeal

of such totalitarian systems. As Paul puts it in *Carpenter's Gothic*:  
"keep an open mind your brains will fall out..."<sup>42</sup>



CHAPTER 19.

Ronald Sukenick.

This chapter will discuss Sukenick's two later novels, in terms of his critique of the rationalist and deterministic bases of orthodox power. In these works, provisionality and multiplicity become possible resources for movement out of the impasse of binary control favoured by technocratic interests.

In 98.6 (1975), Cloud rejects the dualistic "either/or" choices by which power bases maintain their control:

For everything you pay. Why are things always doubled in contradiction this way. Either way you choose you lose. It's always this or that when you need both Cloud is beginning to think there's something wrong with the whole culture. Body or soul. Dream or reality. Reason or feeling. Vision or sanity. Love or power.'

In the interview that Ron gives to the American newspaper, Sukenick parodies technocratic surveillance tactics and the quantifying, rationalist language of control. The utilitarian simplification of reality to "Yes or no. True or false" is satirised in a series of banal, programmatic questions:

How many members in your average mean family.  
Our families aren't mean.  
Don't kid around. What is your gross national product.  
It's not gross.  
Cooperate.  
Do you want the quality of life or the quantity of life.  
We want yardsticks.<sup>2</sup>

Utilitarian quantification turns desire into uniform, homogeneous units, for the purposes of manipulation and control. However, recalling Charles Fort, Sukenick implies areas of experience which remain uncollected by acts of systematization:

Ronald Sukenick. Private. 065-26-6564... Private. Private. Private. We are currently working on the general equations that would express happiness and unhappiness in terms valid for all individuals in all states.... A RADIO BROADCAST IN TEXAS WAS SUDDENLY RECEIVED FIVE YEARS LATER BY RESIDENTS OF LONDON. THREE LEGGED ALBINOS SEEN HOPPING AROUND IN THE MIDWEST. MEAT RAINS FROM THE SKY. AN EXTRATERRESTRIAL SATELLITE DETECTED CIRCLING THE EARTH. STARS ARRANGED IN SEMAPHORE MESSAGES. There exists a passion for comprehension which like a passion for music opens the possibility that therefore all the information was not present in the initial state of the universe implying a complementary universe when you are there it is not when it is there you are not axiomatically beyond prediction or even comprehension.\*

The undecidable, beyond prediction and comprehensibility, thus becomes a possible source of value in Sukenick's work, as he explores alternatives to a history of sacrifice. A newspaper reports that the "series of murders that turned out to be part of another mass murder now turns out to be part of a series of mass murders."<sup>4</sup> The text seeks forms of resistance to the repetitive sacrifice of mass technological spectacle.

Included in these challenges is a questioning of the erotic bases of desires for power and domination at the centre of modern scientific projects. The social context of such regimes is explored in the relationship with Rebekah, which passes through three "Phases" - of Cruelty, Imagination and Illumination.

The Phase of Cruelty is isomorphic with empirical and rationalist science, in its substitution of linear abstractions for living bodies:

Rebekah is an idea of which her breasts and buttocks are correlaries and her vagina the proof you might say a carnal idea that is an idea of carnality like a sexy ad a salacious photograph. She is an idea for me I am an idea for her. Ideas start in the head. They are analytic. They are discontinuous with the object. They are a priori in the sense that you lay them on the object she lays her idea on me I lay my idea on her the mode is rape. This is the empirical tradition mind rapes nature manipulation exploitation control. Inevitable. Incredibly erotic. Rebekah



is a slave. Make me do things. Hurt me. My penis is a weapon. She submits to my power she comes like a string of firecrackers. I have three orgasms at a shot we make love all day we're insatiable. It occurs to me we're looking at something the essence of meat. There is no essence of meat. That's why we're insatiable.<sup>5</sup>

The objectification of the other is thus identified with violence and domination. Desire becomes fixated on achieving an impossible unity between idea and object, self and other, the failure to achieve which leads to insatiability and disease. The next stage is given as "inevitable": "Since the closer we come to continuity the further we are driven from it the only way to achieve union is for one of us to in effect cease existing to become a pure object a thing ecstasies of sado-masochism ensue." Neurosis and violence thus have sexual bases: "After coitus all men are sad. Naturally. With this kind of coitus."

In these passages, Sukenick's explorations of eroticism and sacrifice recall Georges Bataille. In *Eroticism*, Bataille describes sacrificial acts as follows: "the female partner in eroticism was seen as the victim, the male as the sacrificer, both during the consummation losing themselves in the continuity established by the first destructive act."<sup>6</sup> The inevitability of violence in Sukenick's description of the Phase of Cruelty is an amplification of Bataille's analysis, in which erotic desires for continuity through violence and death are an outcome of the bodily existence of human beings as products of sexual reproduction. For Bataille, "Reproduction implies the existence of *discontinuous* beings,"<sup>7</sup> and this discontinuity, which apparently remains an unconditional fact of nature, is a source of intolerable isolation and suffering, and a consequent desire for continuity through violence and death.

Accordingly, 98.6 is ambiguous concerning the possibility of resistance to its Phase of Cruelty. Moreover, Sukenick does not guarantee the success or efficacy of any strategy explored in his novels. Instead, he sets up a relativistic and provisional text, that remains open to new possibilities of resistance to inevitability and despair.

98.6 goes on to explore counter-strategies to sacrificial history in terms of contemplation and withdrawal:

In the next phase we don't make love. We meditate. This is the Phase of the Imagination. We contemplate one another's beauty we withdraw into ourselves I try to imagine what she feels like...<sup>2</sup>

Beyond this is the Phase of Illumination, in which

orgasm is what I can only term a musical experience. In this phase we may say that after coitus all men laugh. Gently. The consequence of this kind of orgasm is harmony as opposed to the cacaphony inherent in the sadomasochistic type.<sup>3</sup>

Yet if a new paradigm of social and sexual behaviour is being tentatively developed here, it is not without irony. 98.6 suggests the possibilities of founding a society based on love and pleasure, rather than on sacrifice, as part of an ironic exploration of American utopias. In this way, Sukenick's fiction enters areas of experience beyond the desire in deterministic science for predictability and totalising systematisation, and shows an interest in undecidable, anomalous, and extraordinary phenomena which evade total signifiatory control. However, the irony and duplicity is ever-present, undermining the idealistic security and complacency of these Romantic alternatives to the rationalism of the status quo, and endlessly deferring any sense of a closed, solutionary programme.



In 98.6, American society is seen as a mechanism that is breaking down, escaping control in manically accelerating drift:

    racing like a wheel out of contact with the ground a loose flywheel spinning faster and faster till it tears the whole machine apart. He swears he's going to slow down do everything slowly breathe deep stay calm. Now look at him driving like a maniac horny as a toad that's part of the mania.<sup>10</sup>

On the freeway, human beings are drawn into Darwinist competition against their better intentions, in order merely to survive.

Resistance to this mechanistic, repetitive system is difficult, in that "it's a lot safer on this here freeway to drive like a sonofabitch get with it if you don't want to get wiped out."<sup>11</sup>

However, one possibility for liberation may be in surrendering this need for total control. Travelling in a rollerskate-powered boat down 7th Avenue, "thrills of fear surge through him as the boat catches gusts of wind almost out of control. Dangerous but exhilarating always teetering on the edge of control he thinks."<sup>12</sup>

Dawn's advice to Eucalyptus when horse riding is that "You're part of the horse you have to learn to think like the horse":

    But Eucalyptus doesn't feel like the horse. She feels like she's sitting on top of all this power that she doesn't know how to handle. She's not in control. And she doesn't want to be in control. What's the sense of being astride all this living power if it's just going to be another thing she can control.<sup>13</sup>

Sukenick thus challenges the mania for control in technocrats such as B. F. Skinner. In *Walden Two*, Carlylian "men of goodwill" will restore control to a drifting civilisation by promising a new start:

    Our civilization is running away like a frightened horse, her flanks flashing with sweat, her nostrils breathing a frothy mist; and as she runs, her speed and her panic increase together. As for your politicians, your professors, your writers - let them wave their arms and shout as wildly as they will. They can't bring the frantic beast under control.

Let her run till she drops from exhaustion... Meanwhile let's see what we can do with her lovely colt.<sup>13</sup>

Skinner reasserts the necessity of Oedipal succession for the perpetuation of programmes of control. In Sukenick, on the other hand, the drift inside deterministic systems is treated more favourably, as potentially liberatory.

Systems in Sukenick are therefore not considered in a context of ambitions for totality and inclusivity. Instead, anomalies are seen as potentially creative breakages of fixity. Fragmentation is preferable to unity, in that "when you try to sew Orpheus back together what you get is Frankenstein."<sup>14</sup> The "science" of "psychosynthesis" thus deals with parts in the absence of wholes:

Psychosynthesis is the opposite of psychoanalysis but apart from that Cloud refuses to define it. Cloud feels that life is a lot like a novel you have to make it up. That's the point of psychosynthesis in his opinion to pick up the pieces and make something of them. Psychosynthesis is based on The Mosaic Law. The Mosaic Law is the law of mosaics a way of dealing with parts in the absence of wholes.<sup>15</sup>

Again, this idea is ironised and relativised, rather than presented in terms of an exclusive truth-value. It is one invention among many, a product of the capacity for design in human beings. With his lack of what William Burroughs calls the "RIGHT-centre," (see chapter 20, note 10), there is in Sukenick an unself-righteousness and openness to new ideas, however apparently ludicrous, without compromising on a basic recognition of evil in the existing sacrificial technocratic system.

In this open manner, 98.6 investigates the problems and possibilities of utopian renewal in America. As in the work of Samuel Delany, assertions of doxological truth, grounded in a history of monological utopias, are avoided. The "Children of



Frankenstein" thus seek alternatives to the "vast culture failures of recent generations,"<sup>16</sup> as a small group attempting to rediscover Eden in the American landscape. In their commune, behavioural habits and closures of identity are broken by mutual involvement:

Everybody does everything to everybody. At the same time. Sometimes they forget who is who sometimes Blossom doesn't know who she is where she begins or where she ends she likes it. She doesn't think of them as names she thinks of them as one flesh apart from the others the first legitimate children of the big poppamomma. Mutants. Monsterspawn. The natural offspring of synthetic parents. The children of Frankenstein. Other people's problems seem trivial to them they have the solution. They are the solution. Branch tells Bud they've rediscovered Eden Bud tells Branch he likes his snake. Branch tells Bud he's nice everything is nice even the snake is nice.<sup>17</sup>

Yet this benign "solution" is questioned and qualified, as the novel remains open to multiple strategies, without allowing any one to over-encode the others, and become "the solution."

Like Delany's Heavenly Breakfast commune, Sukenick's group is an unstructured, flexible system, thereby challenging the entropies of bureaucratic over-organization. The group does not even have a name, as the potentialities of silence, of the non-verbal and the unsaid, are respected as aspects of procesual experience beyond static definition:

Ron calls it Bjorsq but won't define it. Or can't. Anyway they don't want anything that defined or cystallized. What's crytallized is static and what's static is dead. Not that they ever said as much but that's the reason nevertheless. You don't have to say everything. The more that can be left unsaid the better that's the way they all feel about it. They never put that into words either of course there are better things to do with words than repeat what everyone already knows. And then you can always shut up of course.<sup>18</sup>

The desire to innovate, rather than to merely repeat past failures, informs the architecture of the building itself, which has been constructed "following the suggestions in fact the capabilities of

the materials," resulting in a "flexibility that disallows fixed interior walls and that allows extension of the basic structure at need or whim."<sup>19</sup> However, the domes and towers of the settlement are also "this jumbo poppamomma,"<sup>20</sup> suggesting the difficulties of avoiding inherited power structures, a problem that becomes one of the central issues in the novel.

For withdrawal from modern American society is a solutionary programme whose success is uncertain:

They want to be apart. They want to quarantine themselves. They want to stay away from the general infection and give themselves the chance to create something really healthy... The Antifrankenstein is going to be the salvation of Frankenstein that's the only way to do it it's the last chance they've thought about it. Anything born of Frankenstein is of the nature of Frankenstein the only thing to do is stay completely apart everything else has been tried it doesn't work. Maybe nothing works that's a possibility.<sup>21</sup>

The attempt to disconnect from the past is duplicitous and contradictory, in that "there's a sense to their whole thing of new beginning and last chance even though in fact there are no new beginnings and no last chances."<sup>22</sup> This despair at the prospect of inevitabilities underpins Sukenick's exploration of multiple strategies of resistance. No actions escape irony or ambiguity, as the text remains open in a creative scepticism.

Dreaming that he is a prisoner in a cell at the base of a Mayan pyramid, the protagonist contemplates various strategies of escape. But his faith in the unexpected and the extraordinary, as a salvationary metaphysic (recalling Maxwell's singular points), turns out to be misplaced:

He's given up trying to chip through the blocks of stone also surprising and murdering one of the guards changing costumes he's tried all that. Now he wonders if there might be some way out through magic. Or though dream. Or



acceptance. Or withdrawl. He decides the best thing would be to play his role through. To resist the torture and keep his mind alive and play his role through in the fullest consciousness. Waiting for the unexpected the abberation the extraordinary event the one chance in a million that will allow him if he's alert enough to slip through. Putting his faith in the unknown. When Cortez captures the palace and kills the priests he's not even surprised. He totters up the steep narrow steps to the courtyard where's he's immediately slaughtered by the white men along with every other male in sight he's just another greaser to them.<sup>23</sup>

No strategy of resistance is guaranteed immunity from Sukenick's bathos and irony.

This duplicity moves 98.6 out of the militaristic singularity of utopian fictions such as *Looking Backward*. Sukenick's commune is not a static, mechanistic imposition, but is tested, and shown changing and breaking down, as expectations, needs and desires shift and alter in time:

Valley doesn't think much she's happy. When you're happy why think... When she thinks what she thinks is that everything is horizontal nothing is vertical. She thinks that maybe vertical was always a mistake but sometimes she also thinks she wants to be alone. She thinks they're all like babies together she likes being babies. She wonders what happens if she starts to grow up.<sup>24</sup>

In this way, communality and individualism, the horizontal and the vertical, are both questioned as simplifications of an unresolvable complexity.

In 98.6, libertarian freedom even becomes a new form of constraint, when Buck becomes addicted to sex, "sensitized to erotic energy like a police dog to pot."<sup>25</sup> He sees fucking as a cure: "He wants the whole country reorganized into small towns based on sexual compatibility." But this utopian solution brings only repetition and a dissipation of energy. Buck has a "permanent erection a real rifle barrel that goes off but never down. Get it on get it in get it off

Cloud doesn't like him a cloud is always changing Buck always wants to do the same thing."<sup>26</sup> Sexual liberation has here turned into a form of slavery: "There's been so much fucking going on around this place that nobody can get his work done any more and instead of satisfying them it just makes everybody hornier."<sup>27</sup>

Similarly, the condition of "Pure Horniness" is an endless Dionysian disruption of order, in which constant transgression itself becomes entropic:

A transmutation occurs not unlike that in an atomic explosion the delicate balance of personal and social forces held in suspension that we call civilization explodes in a moment of frenzy rape cruelty murder and collapses into the lower level of organization characteristic of dead matter Hitler's Germany. Eros provokes Thanatos. Or so they say. It's fucking that opens Pandora's box. Orgasm is the first gasp the first gasp of insatiability that only ends by ending the unbearable tension between matter and spirit between life and death.<sup>28</sup>

Again, Sukenick draws on Bataille, facing the possibility that such scenes of violence and sacrifice are inevitable. The fear remains in his work that a combination of original sin and irreversible social change makes political intervention futile. As in William Gaddis, Sukenick recognizes that the irreversibility of history's arrow of time may preclude the possibility of radical social improvement. In 98.6, Wind notices that "The Slaughter has started again," and fears that the damage may be permanent and irreversible:

Before he had the possibility of its stopping to cheer him up even though it didn't stop. This time it's so bad that even if it stops forever tomorrow it will be permanently revolting. And what if it doesn't stop. And what if it stops but goes on in some other form. Wind wants to organize a demonstration but the thought of a demonstration here in Stamperville is almost enough to make him laugh.<sup>29</sup>



In the face of hereditary and inevitable trauma, there is a "despair at the heart of things," a fixed, unconditional centre underneath the processes of change:

And it's passed in the genes of the parents to the hearts of the children. Except that Paul doesn't have any children so there's still a chance for a change of heart. To break the chain. Bullshit. Everyone Paul knows has a change of heart two or three times a year some every weekend. And under every change still The Great Depression. Joy doesn't get rid of it. Dope doesn't get rid of it. Sex doesn't get rid of it. Freedom doesn't get rid of it. Murder doesn't get rid of it. Give up and die. Emptiness is the best you can hope for. The pause between the beats the clean slate the blank space.<sup>30</sup>

In place of the rich narratives of the liberal Enlightenment, there is now a blank space, "Where the terror is," leaving only a "Sadness of mourning" for the endlessness of rebellion closed in cycles of Oedipal repetition:

It's the mourning of those who have run away from home. It's the mourning of those who have run away from home as their parents ran away from home. It's the mourning of those who escape the past who escape into the present. Again and again. It's the mourning of orphans in a country of orphans.<sup>31</sup>

This pessimistic sense of inevitability recalls the Oedipal closure of the post-war state in Pynchon's *Gravity's Rainbow*:

The Oedipal situation in the Zone these days is terrible. There is no dignity. The mothers have been masculinized to old worn moneybags of no sexual interest to anyone, and yet there are their sons, still trapped inside inertias of lust that are 40 years out of date. The fathers have no power today and never did, but because 40 years ago we could not kill them, we are condemned now to the same passivity, the same masochistic fantasies they cherished in secret, and worse, we are condemned in our weakness to impersonate men of power our own infant children must hate, and wish to usurp the place of, and fail...<sup>32</sup>

In Pynchon, these inherited structures are too powerful to allow any effective possibility of rebellion. Generational inheritance is conceived of as an inevitability, as a symptom of an essentially

fallen human nature. In this extract, Pynchon's language is casually totalising and absolute: to break away from repetition of the past into innovative and creative behaviour, by killing the father, is something "you will never quite manage," as "we" inherit power that the next generation "must" hate, seek to transcend, "and fail."

A similar fatalism enters Sukenick's texts, but is offset by an explorative openness that refuses to allow itself to be ossified into a fixed territory. Counter-strategies to control are explored with less of the habitual nostalgia for origin and singular, unmediated truth that characterises Pynchon's work.

Sukenick's *Long Talking Bad Conditions Blues* (1979) thus refuses the epic, tragic scope of a Pynchon, and fights against nostalgia for determinism and order. Particularities are valued above the need for code, system and singular truth.

This rejection of the epic in favour of the "petty iconography of the quotidian,"<sup>33</sup> may be seen by comparing the apocalyptic or bathetic endings of Pynchon's novels - the waterspout in *V.*, Oedipa awaiting revelation, the rocket about to fall - with the last page of *Long Talking Bad Conditions Blues*, where Carl regrets the nuisance caused by the urban renewal program that has led to the demolition of the public toilets:

wishing they hadn't demolished the old public toilets  
because he had to piss a fact more fundamental than a fund  
of ephemeral epiphanies but reflecting that all things come  
to an end at the same time recognizing there was no point  
imposing a sense of tragedy on old public toilets and that  
things didn't have beginnings and endings in that sense they  
just start and then they stop<sup>34</sup>



Sukenick's rejection of tragic teleological structures opens his work to drift as creative opportunity. In this way, his novel may be compared with Pynchon's *V.* (1963).

Arriving in Norfolk, Virginia on Christmas Eve, in the first sentence of Pynchon's novel, the drifter Benny Profane is immediately placed within a context of beginnings and endings, of tragically impotent programmes of salvation and rebirth. When he meets Paola, Profane is endowed "with all manner of healing and sympathetic talents he didn't really possess."<sup>25</sup> Sitting on an elevated spar, wearing a cowboy hat, Profane pretends to be God, directing the behaviour of the sailors below him. Having failed to perform such large miracles, he then sets off as many of the ship's mousetraps as he can find, saving mice at risk to himself, when he catches his fingers in the final mousetrap. Such small acts of compassion for the preterite are spontaneous, non-bureaucratized acts of resistance in Pynchon, which are nevertheless placed within a nostalgic context of larger needs for religious salvation.

It is this desire for total, epic structures that is questioned in Sukenick's *Long Talking Bad Conditions Blues*. Carl is another drifter, one of the "confirmed goofoffs," who had "no aims no expectations no hopes and liked it that way. Carl's own vague wanderings and meditations aimless as they were fit into that category."<sup>26</sup> Yet Carl's drifting has less of the nostalgia for totality than that of Pynchon's *V.*

Carl wanders past architecture which is not epically manipulative and totalitarian, but is instead "fascinating if unpretentious." Living on an island makes Carl feel "afloat here

detached adrift it was not totally unpleasant nor totally pleasant either."<sup>37</sup> Similarly, being lost in the city is "not unpleasant."<sup>38</sup> It is this middle state between good and bad, pleasure and pain, an area of McLuhanite cool, that characterises release from monolithic teleological structures in Sukenick's novel. Carl forgets his original destination, "getting nowhere if not happily at least quite absorbed," his fixed tourist map rendered useless by the rapidly changing environment.

Such drift beyond certainties and closures is duplicitous, disruptive of neat categorisation. As such, there remains the possibility of "panic under the surface to which he pretended to be so indifferent."<sup>39</sup> The conditions are of "general disorientation and underlying disquiet you might even say panic the uncertainty about the future and maybe worse about the past."<sup>40</sup> In this accelerating environment, where old structures are unstable, survival becomes a vital issue.

Sukenick's novel rejects epic narratives in favour of attention to the "multiple velocities of phenomena circulating through the city otherwise going unattended in all their possibility."<sup>41</sup> In place of grand narratives, localised phenomena, uncollected into an *a priori* system, are valued. Accordingly, Carl is prepared to accept the "limitations of glinting facets of happy ambiguities of fascinating door knobs the texture of pizzas the feathering of ear lobes the lesser gestures of sea anemones..."<sup>42</sup> In a similar way, Veronica thinks that "big ideas" are "cheap."<sup>43</sup>

The relevant model for these dispersions of totality is that of quantum physics, in which the observer participates in the observed,



so that knowledge can never be complete or conclusive. Sukenick thus rejects obsessions with singular truth, with what Pynchon calls the "Kute Korrespondences" that in *Gravity's Rainbow* would provide the deterministic security of absolute, finite interpretation:

kicking endlessly among the plastic trivia, finding in each Deep Significance and trying to string them all together like terms of a power series hoping to zero in on the tremendous and secret Function whose name, like the permuted names of God, cannot be spoken... to bring them together, in their slick persistence and our preterition... to make sense out of, to find the meanest sharp sliver of truth in so much replication, so much waste...<sup>44</sup>

Here *Gravity's Rainbow* shows its nostalgic allegiance to a regime based on linear perspective, and its correspondence theory of truth. In contrast, Sukenick challenges singularity and centrality in favour of multiplicity:

it was almost impossible to come to a conclusion about one's own flow and that in fact this was a contradiction in terms since one was precisely one's own flow so that conclusion was impossible and even undesirable whatever the culture might recommend about being objective having perspective.<sup>45</sup>

Totalising obsessions and linear hierarchies are thus surrendered. It becomes possible to "admit the mysteries the blanks in consciousness... forget our fatuous infatuation with final fact and the continuities thereof."<sup>46</sup> Objectivist, linear perspective has been replaced by a participative involvement in discontinuities and multiplicities.

Sukenick's extrapolation from modern physics crucially involves the formal constructions of his texts. The entire text of *Long Talking Bad Conditions Blues* is an uninterrupted flow of words, without full stops or capital letters, in marked contrast to Pynchon's mania for capitalising his key terms (for example, "Deep Significance.") In this way, the formal experimentation of

Sukenick's writing challenges Newtonian assumptions of conclusion, perspective, hierarchy, completeness and continuity. Each of his novels is designed on the page in a different way, as he uses blank areas of the page to enjoy a sense of incompleteness, discontinuity and of necessary gaps and silences. These formal innovations may be compared to the relative formal conservatism of Pynchon, and also of Samuel Delany's science fiction, in which a theoretical acknowledgement of plural centres opened up by modern physics rarely affects the form of the writing itself, which, like Pynchon's, relies closely on narrative constructions which remain linear and epic. In contrast, Sukenick, like William Gaddis, challenges deterministic order not only in the ostensible "content" of his novels, but also in the processes of formal construction themselves.

Avoiding nostalgia for the securities of deterministic solutions, *Long Talking Bad Conditions Blues* proposes a sense of risk and openness. Like Henry Adams at the end of the nineteenth century, desire for total order is courageously rejected: everything is "breaking up let it go."<sup>47</sup> Although Sukenick occasionally describes modern society in terms of entropy, of "time drift energy leak irretrievable loss enervated stasis,"<sup>48</sup> this situation is not perceived in Pynchon's terms of tragedy and religious loss. Instead, a "new economy of limited resources thrifty collage and bricolage" suggests itself.<sup>49</sup>

*Long Talking Bad Conditions Blues* places these acts of resistance within an examination of bureaucratic obsessions with codification and quantification. Bennett writes reports which reduce particularities and differences to a generalised level of codified



information. Accordingly, he tells Carl that he does not need to know anything about a subject in order to be able to write a report about it:

it was all a matter of processing and you didn't want inert clots of knowledge impeding the information flow inert clots of knowledge furthermore could lead to the rigid form of humanistic intelligence known as wisdom which was nothing more than information frozen in traditional cliches which were completely inappropriate to the new conditions which were fluid atraditional and constantly changing and ossified the cybernetics of the mind which was a digital process dealing in a progressive minutia of yesno determinations /

yesno determinations according to Bennett could only function in a value free mental ambiance and nothing could be more antithetical to the bright yesno clarities of the new thought than the vague and foggy meanderings of the humanistic...<sup>50</sup>

Writing reports is "our substitute for god if you know of any other end please let me know..."<sup>51</sup>

Sukenick's novelistic innovations parody and challenge this technocratic reduction of language to code, by inventing multiple, non-hierarchical structures beyond singular truth and total systematisation. His writing is open to the positive potentiality of drift, yet the inadequacies of Romantic resistances to order are themselves criticised and ironised in playful, duplicitous texts.

CHAPTER 20.

William Burroughs.

William Burroughs' work criticises technocratic uses of language and power, and devises multiple strategies of resistance. The claims of technocratic scientists to work within an area of value-free functionality, and the denial of responsibility which this implies, provides a point of departure for Burroughs' satire, as he parodies familiar science fictional environments to reveal the workings of power often neglected by such narratives.

In *The Naked Lunch* (1959), the Reconditioning Center in Freeland, with its "long ward gleaming with stainless steel, white tile floors, glass brick walls," presents a veneer of professional, technocratic neutrality, under which move flows of desire, violence, and power.

Dr. Benway applies scientific research to the human body as both surgeon and behaviourist experimenter. He is introduced as a "manipulator and coordinator of symbol systems, an expert on all phases of interrogation, brainwashing and control," brought in as "advisor" to the Freeland Republic.<sup>2</sup> Benway thus works directly for the state as a technocrat seeking to perfect methods of behavioural control.

When patients with Irreversible Neural Damage break out of their ward, Benway refuses responsibility for their care, using the familiar alibi of "pure science." The attendant asks Benway what he should do with them, to which Benway replies:



How the fuck should I know? I'm a scientist. A *pure* scientist. Just get them outa here. I don't hafta look at them is all. They constitute an albatross.\*

The IND's are "Our failure," but, according to Benway's catchphrase, "it's all in the day's work." In these routines, Burroughs demystifies scientific activity, placing it within a context of paid labour and its justificatory alibis. His scientists deploy the alibi of "pure" research to free themselves from responsibility for the practical applications of their work. When Dr. Benway and Dr. "Fingers" Schafer carry out a new operation on a human subject, Schafer has initial misgivings: "I tell you I can't escape a feeling... well, of *evil* about this." But Benway reasserts the credo of the irresponsible, amoral scientist, giving himself permission for a continuation of Faustian urges:

"Balderdash, my boy... We're scientists... Pure scientists. Disinterested research and damned be him who cries, 'Hold, *too much!*'. Such people are no better than party poops."<sup>4</sup>

The pleasures that Benway finds in control-work ensures the constant development of his science, often with dangerous consequences for other human beings. After using a lavatory as an operating room, aided by his baboon assistant, Benway carries out an operation that has "absolutely no medical value." For Benway, as for Hawthorne's Aylmer, scientific control is an art form that moves beyond mere utility:

"No one knows what the purpose of it originally was or if it had a purpose at all. Personally I think it was a pure artistic creation from the beginning."

"Just as a bull fighter with his skill and knowledge extricates himself from danger he has himself invoked, so in this operation the surgeon deliberately endangers his patient, and then, with incredible speed and celerity, rescues him from death at the last possible split second... Did any of you ever see Dr. Tetrazzini perform? I say

perform advisedly because his operations were performances..."<sup>5</sup>

In Delany's *Stars in My Pocket Like Grains of Sand*, lobotomies are also considered as works of art. But Burroughs refuses the tacit permission given to such activity in the name of a morally relativistic science fiction, choosing not to compromise on vital issues of power and domination in a highly technological society.

In Burroughs' work, scientific experiments are mainly concerned with a violent reduction of human beings to mere functionality, a rigorous application of Taylorist efficiency to the human body. To Schafer, this is just "plain old-fashioned surgery," a subject on which he has many new ideas:

The human body is scandalously inefficient. Instead of a mouth and an anus to get out of order why not have one all-purpose hole to eat and eliminate? We could seal up nose and mouth, fill in the stomach, make an air hole direct into the lungs where it should have been in the first place...."

At the "meeting of international conference of technological psychiatry," Schafer turns on the "cold blue blast of his gaze," as he reveals his ultimate assault on humanist values:

"Gentlemen, the human nervous system can be reduced to a compact and abbreviated spinal column. The brain, front, middle and rear must follow the adenoid, the wisdom tooth, the appendix.... I give you my Master Work: *The Complete All American De-Anxietized Man*...."

This is not the "Radical Anxiety Termination" whose possible beneficence is played with by Samuel Delany. Instead, the De-anxietized Man is an unequivocal product of evil, as he turns into a monstrous black centipede which terrorises society in another repetition of the Frankenstein myth. Schafer, previously responsible for "the unspeakable crime of brain rape" or "*forcible lobotomy*," has "reduced whole provinces of our fair land to a state bordering



on the far side of idiocy," filling warehouses with "helpless creatures who must have their every want attended.... 'The Drones' he calls them with a cynical leer of pure educated evil...."® The Drones are like characters in Delany's heterotopias, but with the power relations more thoroughly explored.

Moreover, Burroughs' central routines explore strategies of resistance to such totalitarian power. In *The Place of Dead Roads* (1983), he investigates the major American frontier myths of the nineteenth century gunslinger and twentieth century spaceman, as part of an examination of which narratives may be valuable, and which dispensable, for the future of humankind. A necessary part of this exercise, as in Delany's *The Einstein Intersection*, is an unsentimental rejection of obsolete and destructive myths, the "dead roads" of the novel's title:

The guide traces the area on the map with his finger....  
"The Place of Dead Roads, *senor*. This does not mean roads that are no longer used, roads that are overgrown, it means roads that are *dead*. You comprehend the difference?"®

Dead roads cannot be nostalgically retraced or merely reformed. Accordingly, Burroughs' fiction examines major narratives of industrial society, to work out new strategies of resistance to power and exploitation. A vital aspect of this fiction is a parodic demolition or reapplication of some of the common themes of science fiction literature and film, especially those of alien invasion, space and time travel, and species evolution.

Power is for Burroughs an alien virus which invades the human nervous system and replicates itself as patterns of habitual submission to authority. Parasitic viruses control their human hosts as slaves, at a molecular level:

Now your virus is an obligate cellular parasite, and my contention is that what we call evil is quite literally a virus parasite occupying a certain brain area which we may term the RIGHT centre. The mark of a basic shit is that he has to be *right*.<sup>10</sup>

This reliance on truth-value is used as permission to exploit and annihilate as victims those outside the area of singularity. Such manipulative control wins consent for its rule by seducing the human body's capacity for pleasure. Thus the alien monsters on Venus are hideous parasitical forms, who exploit the erotic pleasures that their victims find in submission:

they stick out from their mouths this long proboscis... which penetrates right to these special places in the nervous system and sucks all the soul and spirit right out of the target while he squirms and shrieks in the deadly pleasures of the proboscis. ... A young soldier who was rescued in time said it was like all the best comes he ever had all rolled into sweet liquid gold in his nuts. "She was killing me and I knew it and I loved it...."<sup>11</sup>

Burroughs does not self-righteously distance himself from the temptations and seductions of such control. As Kim Carsons says, "I want to visit this southern area. It sounds like my sort of thing."<sup>12</sup> Similarly, characters who resist tend to fall back into ways of control, as *Nova Express* makes clear:

- To live is to collaborate - Anybody is a coward when faced by the nova ovens - There are degrees of lying collaboration and cowardice - That is to say degrees of intoxication - It is precisely a question of *regulation*...<sup>13</sup>

The complexity of Burroughs' writing thus disallows the formation of a simplistic dogma, or the complacency of an assumed solutionary programme.

The intention of the aliens in *The Place of Dead Roads* is to "destroy souls and so limit and monopolize immortality."<sup>14</sup> As an act of resistance, Kim Carsons sets out to organise his band of outlaws,



the Johnson Family, into an "all-out worldwide space program," to bring about the "realization of our biologic and spiritual destiny in space."<sup>15</sup> Space travel in Burroughs is a movement out of repetitive closure, a seizing of new potentiality through de-territorialisation.

These areas of positive experience valued by Burroughs, and threatened by parasitical power interests, tend to be signified in terms of "soul," "spirit," "emotion," and "immortality," as Romantic areas in opposition to mechanistic science. This is evident in the following extract from *Nova Express* (1968), in which the cybernetician inhabitants of the Crab Nebula, in a parody of the Selenites in Wells's *The First Men in the Moon* (1901), are seen as repressively disembodied intelligences:

They do not have what they call "emotion's oxygen" in the atmosphere. The medium in which animal life breathes is not in that souless place - Yellow plains under white hot blue sky - Metal cities controlled by The Elders who are heads in bottles - Fastest brains preserved forever - Only form of immortality open to The Insect People of Minraud - An intricate bureaucracy wired to the control brains directs all movement - Even so there is a devious underground operating through telepathic misdirection and camouflage -<sup>16</sup>

Strategies of resistance to such bureaucratic control multiply in Burroughs' work. As in Gaddis and Sukenick, such strategies of resistance vitally include the act of writing itself, and the invention of new artistic forms for survival and health. If not telepathy, the "misdirection" of messages in closed informational circuits is a crucial means of subverting the power of bureaucratic control. Language is therefore central to Burroughs' explorations of power and control in modern technological society.

In *The Job* (1969), the District Supervisor reads a cut-up parody of cybernetic language, from which he removes all images and "colours" for purposes of strict operativity. Burroughs adds:

These jewels gathered from one of the periodicals admittedly subsidized by the C.I.A. If you see the function of word as extension of our sense to witness and experience through the writer's eyes then this may be dubbed blind prose. It sees nothing and neither does the reader. Not an image in a cement mixer of this word paste. As a literary exercise I pick up the Penguin translation of Rimbaud and select images to place in congruent juxtapositions with this colourless vampiric prose which having no colour of its own must steal colour from the readers.<sup>17</sup>

Burroughs' fictional activity thus finds ways of countering the parasitical discourses of power. In *Nova Express*, the *Technical Deposition of the Virus Power* links image-as-virus to scientific regimes of binary codification, including the deterministic implications of DNA-theory:

"Gentlemen, it was first suggested that we take our own image and examine how it could be made more portable. We found that simple binary coding systems were enough to contain the entire image however they required a large amount of storage space until it was found that the binary information could be written at the molecular level, and our entire image could be contained within a grain of sand. However it was found that these information molecules were not dead matter but exhibited a capacity for life which is found elsewhere in the form of virus. Our virus infects the human and creates our image in him.

"We first took our images and put it in code. A technical code developed by the information theorists. This code was written at the molecular level to save space, when it was found that the image material was not dead matter, but exhibited the same life cycle as the virus. This virus released upon the world would infect the entire population and turn them into our replicas, it was not safe to release the virus until we could be sure that the last groups to go replica would not notice. To this end we invented variety in many forms, variety that is of information content in a molecule, which, *enfin*, is always a permutation of the existing material. Information speeded up, slowed down, permuted, changed at random by radiating the virus material with high energy rays from cyclotrons, in short we have created an infinity of variety at the information level, sufficient to keep so-called scientists busy for ever exploring the 'richness of nature.'

"It was important all this time that the possibility of a human ever conceiving of being without a body should not arise. Remember that the variety we invented was permutation of the electromagnetic structure of matter energy intersections which are not the raw material of nonbody experience."<sup>18</sup>



The concept of binary codification is here extended to include biochemical control at a molecular level, enclosing human potential in a repetitive nature. For Burroughs, beyond these limited, material codings, with which science is concerned, are non-body experiences, the imaginative de-territorialisations of the Beats, which enter areas of experience suppressed by rationalist structures, and are suggested as forms of escape from regimes of codified limitation.

Such resistances include countering the perpetuation of dualistic conflict structures. As part of its satire on technocratic science fiction, *Nova Express* exposes the vogue for cybernetic "feedback" as an alibi for the continuation of manichean dialectics and competitive struggle. The basic "nova mechanism" is to, "Always create as many insoluble conflicts as possible and always aggravate existing conflicts...":

At any given time recording devices fix the nature of absolute need and dictate the use of total weapons - Like this: Take two opposed pressure groups - Record the most violent and threatening statements of group one with regard to group two and play back to group two - Record the answer and take it back to group one - This process is known as "feed back" - You can see it operating in any bar room quarrel - In any quarrel for that matter - Manipulated on a global scale feeds back nuclear war and nova - These conflicts are deliberately created and aggravated by nova criminals - "°

Strategies of resistance to manichean closure involves the breaking of repetitive linguistic sets, for "if there is one thing that carries over from one human host to another and establishes identity of the controller it is *habit*..."°°

Creative writers and artists therefore play vital roles in such oppositional practices, as "Biologic Counselors." These "must be

writers that is only writers can qualify since the function of a counselor is to create facts that will tend to open biologic potentials of his client..."<sup>21</sup> The fraudulent neutrality of technocratic science is thus challenged by an explorative and creative imagination, as a Romantic challenge to scientific power.

Burroughs' texts finds resources to counter language as a vampiric force in the work of Alfred Korzybski, whose lectures Burroughs attended at the University of Chicago in the 1930s. In *The Job*, Burroughs takes up Korzybski's attack on Aristotelian binary divisions as an archaic, neurotic form of thought, one of those "formulas, word-locks, which will lock up a whole civilization for a thousand years." Burroughs follows Korzybski in rejecting Aristotle's *is* of identity:

this *is* a chair. Now, whatever it may be, it's not a chair, it's not the word chair, it's not the label chair. The idea that the label is the thing leads to all sorts of verbal arguments, when you're dealing with labels, and think you're dealing with objects.<sup>22</sup>

In Burroughs' work, Western myths of mimesis and referentiality, as bases of imperialist power, are replaced by a sense of language and art as a creative making. In this way, language and art become technological counters to neurotic power.

The techniques of cut-up and fold-in are such counter-strategies to linguistic control. In *The Job*, Burroughs considers these literary technologies as scientific experiments, possibly leading to "a precise science of words," by showing "how certain word combinations produce certain effects on the human nervous system."<sup>23</sup> Burroughs thus invents new forms of control within non-authoritarian structures, replacing conditioning by others within a power



relationship with deconditioning, and then reconditioning under one's own terms, to produce thereby what Burroughs calls (in a paradoxically anti-Korzybskian phrase), a "self that one is, apart from imposed thinking."<sup>24</sup>

Borrowing from Hubbard's Dianetics the idea of the "Reactive Mind," Burroughs explores the "Artificially constructed and highly disadvantageous regulatory system grafted on to the natural regulatory centre,"<sup>25</sup> whereby control becomes as automatic and involuntary as the body's metabolic reactions. Burroughs' methods of counter-control involve using behaviouristic methods against themselves, to promote self-control, rather than susceptibility to authoritarian control:

Anxiety reactions can be removed as they were implanted, by punishment and reward. It is now possible to decondition man from the whole punishment-reward cycle which has held him on an animal level for 500,000 years by rewarding the manifestations of deconditioning and punishing the old automatic responses. Only those dedicated to suppressive control will oppose this deconditioning process.<sup>26</sup>

In this way, Skinnerian methods are used against themselves, as a means of moving beyond the utilitarian pain-pleasure enclosure upon which positive reinforcement programmes, such as those in *Walden Two*, are predicated.

There are in Burroughs, therefore, unlike in Pynchon and Mailer, possibilities for a liberatory technology, taking the form largely of an interest in ideas and instruments rejected by scientific establishments, such as the E-meter, and Reich's Orgone box. Concerning Hubbard and Reich, "in all probability discoveries have been suppressed by official agencies to mask secret experiments along the same lines."<sup>27</sup> Thus rather than showing a Romantic reflex

against technology, Burroughs asks vital questions of control: "Is this knowledge in the best hands"?<sup>22</sup>

The control of knowledge and information by global technocratic power interests is therefore seen as a central strategy for their perpetuation. Burroughs claims that vested interests of power and money have suppressed new discoveries and products that threaten the status quo, and provides several examples of such control. He claims that the American medical profession has deliberately suppressed not only Dianetics and Scientology, but also Reich's orgone accumulator, and the use of massive doses of Vitamin E for the prevention of heart disease, and of Vitamin A for curing common cold, as well as the administration of apomorphine for heroin addicts. The medical profession, in sum, has "*a vested interest in illness*," and so suppresses any discovery that strikes at the root of illness.<sup>23</sup>

On a global level, this monopolisation of technology and knowledge by power elites has been exacerbated by the fictitious alibis of Cold War, which have given spurious permission for official secrets acts:

Vested interests, whether operating through private, capital or official agencies, suppresses any discovery, product or way of thought that threatens its area of monopoly. The cold war is used as a pretext by both America and Russia to conceal and monopolize research, confining knowledge to official agencies. It is no exaggeration to say that all important research is now top secret, until someone lets a rat out of the bag...

Important research that could be used to free the human spirit is being monopolized by paltry intellects in the name of 'national security.'<sup>24</sup>

Such bureaucratic conservatism is for Burroughs a product of the Industrial Revolution, according to the logic of which industrial managers, instead of being open to innovation and improvement,



prefer to market the same in the guise of the new. Burroughs gives the example of the Tucker car, which would have forced other companies to change their dies, and accordingly created so much antagonism that the inventor was forced nearly to jail.

In *The Place of Dead Roads*, the Industrial Revolution, in "its overpopulation and emphasis on quantity rather than quality," is seen to have "given them a vast reservoir of stupid bigoted uncritical human hosts." Kim Carson's declaration of intent promises to reverse these tendencies, in favour of decentralisation:

We will endeavour to halt the Industrial Revolution before it is too late, to regulate populations at a reasonable point, to eventually replace quantitative money with qualitative money, to decentralize, to conserve resources. The Industrial Revolution is primarily a virus revolution, dedicated to controlled proliferation of identical objects and persons. You are making soap, you don't give a shit who buys your soap, the more the soapier. And you don't give a shit who makes it, who works in your factories. Just so they make soap. \*\*

One of the central engines of mechanistic, industrial control in the twentieth century is Hollywood, whose movies for Burroughs enforce neuroses of repetitive, socially-constructed need. Such technocratic uses of film image and magnetic tape impose habitual structures onto their human victims:

How do you make someone feel stupid? - You present to him all the times he talked and acted and felt stupid again and again any number of times fed into the combo of the soft calculating machine geared to find more and more punch cards and feed in more and more images of stupidity disgust propitiation grief apathy death - The recordings leave electromagnetic patterns - That is any situation that causes rage will magnetize rage patterns and draw around the rage word and image recordings - Or some disgusting sex practice once the connection is made in childhood whenever the patterns are magnetized by sex desire the same word and image will be presented - And so forth - \*\*

Hollywood repeats its epic plots of warring powers and factions as archaic, linear narratives - Western, gangster and science fiction. In opposition to such strategies, *Nova Express* questions its own narratives of outer space colonisation and exploitation as destructive, Faustian urges in a society of "total emergency."<sup>104</sup> Moreover, these epic conflict narratives are presented not linearly, but as layered episodes, parodies, routines, and plot fragments. This multiplicity, in the absence of a final unity, mitigates against the sense of overall, deterministic manipulation suggested by Hollywood and by most science fiction.

In Burroughs, therefore, as in Sukenick and Gaddis, the invention of novelistic forms is itself a process of resistance to deathly repetition. In particular, film techniques, such as cuts, flashbacks, inserts and montage, constitute positive resources for Burroughs' writing, as models of resistance that disrupt monological, linear control-images. "Photomontage" makes a statement in "flexible picture language," encouraging the reader to think in "association blocks instead of words."<sup>105</sup>

The Subliminal Kid thus undertakes a series of film and tape-recorder experiments, which disrupt orthodox linguistic mediations by reinventing history as a comic, non-linear collage:

He set up screens on the walls of his bars opposite mirrors and took and projected at arbitrary intervals shifted from one bar to the other mixing Western Gangsters films of all time and all places with word and image of the people in his cafés and on the streets his agents with movie camera and telescope lens poured images of the city back into his projector and camera array and nobody knew whether he was in a Western movie in Hongkong or The Aztec Empire in Ancient Rome or Suburban America whether he was a bandit a commuter or a chariot driver whether he was firing a "real" gun or watching a gangster movie and the city moved in swirls and



eddies and tornadoes of image explosive bio-advance out of  
space to neon - 36

The repetition of Western gangster and cowboy myths throughout  
sacrificial history is countered by this layered anti-chronology.  
For Burroughs, this subversion and restructuring of technical  
mediations may liberate human subjectivity, opening up practical,  
creative acts of resistance which the reader is encouraged to  
explore:

The counter move is very simple - This is machine strategy  
and the machine can be redirected - Record for ten minutes  
on a tape recorder - Now run the tape back without playing  
and cut in other words at random - Where you have cut in and  
re-recorded words are wiped off the tape and new words in  
their place - You have turned time back ten minutes and  
wiped electromagnetic word patterns off the tape and  
substituted other patterns - You can do the same with mind  
tape after working with the tape recorder - (This takes some  
experimentation) - The old mind tapes can be wiped clean -  
Magnetic word dust falling from old patterns - Word falling  
- Photo falling - 37

In this creative counter-technology, the machine must be  
"redirected," an experimental process that involves randomness and  
novelty as challenges to inherited order.

But the ultimate form of resistance to linguistic control in  
Burroughs is silence, as a refusal of the continual perpetuation of  
conflicts:

So leave the recorders running and get your heavy metal ass  
in a space ship - Did it - nothing here now but the  
recordings - Shut the whole thing right off - *Silence* - When  
you answer the machine you provide it with more recordings  
to be played back to your "enemies" keep the whole nova  
machine running - The Chinese character for "enemy" means to  
be similar to or to answer - Don't answer the machine - Shut  
it off - 38

Yet despite these resistances, there remains in Burroughs' work, as  
in Gaddis and Sukenick, a fatalistic sense of irreversible damage.  
In *The Job*, the Academy, an alternative, liberatory technological

institution, is acknowledged as a speculative fantasy. Burroughs thus does not allow his science fiction to degenerate into a consolatory "what if" that evades the "what is" or "what becomes" of present society:

Light years away the academy that never was and never could have been. The Brain could not let it happen or it would have happened thousands of years ago. The Brain will not allow you to find out how easy it is to solve problems. Once problems are solved the brain artifact becomes obsolete.<sup>32</sup>

However, despite this sense of inevitability, Burroughs' humour, like that of Sukenick and Gaddis, is always disorientating, and works to undermine the formation of fixed doxas. The disruption of archaic orders, and the finding of new ones, is an open process that counters the static entropies of orthodox, parasitical power with the resources of de-territorialisation and experimentation.



### CONCLUSION.

This thesis has explored many instances of negative or reactive power, in which science and technology are signified as forces of authoritarian manipulation and control, based on an over-reliance on mechanistic models of determinism and totalisation.

In *Sade Fourier Loyola* (1971), Roland Barthes summarises these desires for singularity and system:

The system being a closed (or monosemic) one, it is always theological, dogmatic; it is nourished by illusions: an illusion of transparency (the language employed to express it is purportedly purely instrumental, it is not a writing) and an illusion of reality (the goal of the system is to be applied, i.e., that it leave the language in order to found a reality that is incorrectly defined as the exteriority of language); it is a strictly paranoid insanity whose path of transmission is insistence, repetition, catechism, orthodoxy.<sup>1</sup>

Citing the "sensual pleasure in classification..."<sup>2</sup> of his book's three subjects, Barthes locates the erotic bases of desires for total order. In this thesis, the narrative of Hollingsworth's control over Priscilla in Hawthorne's *The Blithedale Romance* stands as a powerful nineteenth century critique of such totalitarian controls.

In many of the fictions discussed in this thesis, including those of Hawthorne, Melville and Poe, such abuses of scientific and technological control have tended to be criticised in terms of Christian hubris, the scientist or technologist appearing as a Faustian transgressor of divinely-ordained human limits. Signifying processes of this kind may suggest nostalgic desires for an original unity, in a paradisaical utopia beyond technological transformations. Such broadly Romantic tendencies may also be felt in some twentieth

century reactions to technological change, including those of Lewis Mumford, for whom the "organic," as a repository of humanist values such as of spontaneity, feeling and imagination, is a resource in opposition to the "machine" of industrial monopolisation.

Following Nietzsche, the work of Deleuze and Guattari makes an important break with Romantic nostalgias for totality and plenitude, as *Anti-Oedipus* (1983) makes clear:

We no longer believe in a primordial totality that once existed, or in a final totality that awaits us at some future date. We no longer believe in the dull gray outlines of a dreary, colorless dialectic of evolution, aimed at forming a harmonious whole out of heterogeneous bits by rounding off their rough edges.<sup>3</sup>

In *Nietzsche and Philosophy*, Deleuze explores the Nietzschean basis of his destruction of organicist arguments from an apparently unconditional "nature":

All force is appropriation, domination, exploitation of a quantity of reality. Even perception, in its diverse aspects, is the expression of forces which appropriate nature. That is to say nature itself has a history.<sup>4</sup>

In this way, Deleuze removes the unequivocally negative implications of words such as "appropriating, possessing, subjugating, dominating," implications that have hindered many probes into science, technology and culture. As Deleuze restates the issues: "To appropriate means to impose forms, to create forms by exploiting circumstances."<sup>5</sup>

Having thus rejected Romantic nostalgias for a vague, ahistorical humanism, Deleuze and Guattari's work opens the way for speculation on more liberatory forms of science and technology, in the absence of dogmatic solutionary programmes. Accordingly, for Guattari, in *Molecular Revolution*, modern science promises a



transindividual play of non-referential signs, extending rather than repressing the desire of the scientist:

The schizo scientist individually produces de-territorialized signs alongside a collective machine. The cutting edge, so to say, of the machine is here the desire, or perhaps the madness, of the scientist. His desire has become a sign of power by coming into contact with the machinism. The collective agency of utterance that connects things with people does not crush 'human values'. What gives the scientific machine its super-power is the super-humanness that carries desire to the heart of being. Far more powerful than any physicists's cyclotron is the desire that produces de-territorialized signs - super-particles capable of exploding 'natural' particles into a multiplicity, and so in a sense forcing them to be on the defensive.<sup>6</sup>

Archaic obsessions with unity, stability and singularity are thus replaced by *jouissance*: "With its shift to a non-signifying semiotics, the subjectivity of the utterance comes to be invested in an organless body connected to a multiplicity of desiring intensities."<sup>7</sup>

In such terms, the scientist and technologist can be seen as vital figures of active power. *Nomadology* therefore celebrates the "ambulant scientist" as a breaker of orders, whom state scientists are "forever fighting or integrating or allying with, even going so far as to propose a minor position for them within the legal system of science and technology."<sup>8</sup> In such explorations, Deleuze and Guattari provide vital, yet provisional alternatives to those orthodox manias for stability and rational order that beset state or technocratic science, while crucially refusing a naïvely anti-scientific view.

Nevertheless, despite such work, political problems remain that serve to prevent a wider transformation of society based on such a liberatory, free-play of science and technology. In *The Mechanical*

Bride, Marshall McLuhan shows how capitalist society works by exploiting "ordinary human appetites for comfort, prestige, and power."<sup>9</sup> In a market economy, technological developments move beyond their positive role in alleviating drudgery from human labour:

Accelerated change and planned obsolescence constitute the basic principle of an industrial power-economy built on applied science. Production for use? Yes. But for the briefest possible use consistent with the rigging of the market for the pyramiding of profits.<sup>10</sup>

Such a society is perpetuated by what William Burroughs calls the "*Algebra of Need*." In *The Naked Lunch*, "the face of "evil" is always the face of total need," as Burroughs locates heroin as the archetypal capitalist product, in its creation of need and dependency in its victim:

The junk merchant does not sell his product to the consumer, he sells the consumer to his product. He does not improve and simplify his merchandise. He degrades and simplifies the client.<sup>11</sup>

In such a context, assumptions that politics have moved "beyond left and right," and that political change can be administered by a reformed technocracy, as in the work of Buckminster Fuller, perhaps neglect to take into account the reluctance of those who benefit from the old mechanistic, industrial regime of manipulated needs to relinquish their privileges. In the absence of such moves, a global history of sacrifice, damage and exploitation is being perpetuated.

A central question raised by this thesis is therefore that of the role and extent of state power in modern society, a question asked in the 1930s by Wilhelm Reich's *The Mass Psychology of Fascism*:

state function: what part of it relates to its original function of executing social tasks, and what part of it



relates to the later-acquired function of suppressing the freedom of the members of society?'<sup>12</sup>

In the view of C. Wright Mills, the modern state would have a positive function, depending on the future possibilities of its proper rationalisation. The social damage of twentieth century totalitarianism, war and bureaucracy is thereby traced in his work to an imperfect application of Enlightenment projects of reason, education, progress and emancipation.

Yet the liberal-socialist tendencies of such an approach have been criticised by recent French writers, reacting against the sterility and failure of French Marxism. In Lyotard's *Driftworks*, the drift within systems should be seized as a creative opportunity to abolish, rather than merely reform, the orthodox regime of rationality and dialectics:

And we don't want to destroy kapital because it isn't rational, but because it is. Reason and power are one and the same thing. You may disguise the one with dialectics or prospectiveness, but you will still have the other in all its crudeness: jails, taboos, public weal, selection, genocide.<sup>13</sup>

In place of an Enlightenment politics, Lyotard provides a theoretical basis for strategies of resistance to technocratic power through a multiplicity of artistic practices:

all the deconstructions which could appear as aesthetic formalism, "avante-garde" research, etc., actually make up the only type of activity that is effective, this because it is functionally - the word is very bad, *ontologically* would be better and more straightforward - located outside the system; and, by definition, its function is to deconstruct everything that belongs to order, to show that all this "order" conceals something else, that it represses.<sup>14</sup>

In this respect, Lyotard recalls McLuhan's idea, in *Through the Vanishing Point* (1968), of art as a "counterenvironment" to the invisibility of technological change:

All the arts might be considered to act as counterenvironments or countergradients. Any environmental form whatsoever saturates perception so that its own character is imperceptible; it has the power to distort or deflect human awareness. Even the most popular arts can serve to increase the level of awareness, at least until they become entirely environmental and unperceived.<sup>15</sup>

In this thesis, the formal innovations and explorations of recent American novelists, especially Gaddis, Sukenick, and Burroughs, have been seen to provide probes and oppositional strategies to technocratic impositions of totality, determinism, functionality and pragmatic communication.

Such moves must be seen in an historical context of radical exploration that includes the crucial nineteenth century figures discussed in this thesis. Accordingly, the thesis will conclude with a quotation from *The Education of Henry Adams*. Adams foresaw the need for an openness to multiplicity, moving beyond nostalgic desires for totality and the consolations of a singular solutionary programmatic, in his call for a genuinely contemporary education to prepare human beings for the accelerating and disruptive technological changes of the twentieth century:

Images are not arguments, rarely even lead to proof, but the mind craves them, and, of late more than ever, the keenest experimenters find twenty images better than one, especially if contradictory; since the human mind has already learned to deal in contradictions.<sup>16</sup>



NOTES

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5. London 1946, p. 25.
6. *Technics and Civilization*, p. 15.
7. *ibid.*, p. 13.
8. *ibid.*, pp. 21-2.
9. London 1967, p. 268.
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13. *ibid.*, p. 247.
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20. *ibid.*, pp. 232-2.
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22. *ibid.*, p. 237.
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27. *ibid.*, pp. xxiii-xxiv.
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32. *ibid.*, p. xxviii.
33. *ibid.*, p. 7.
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35. *ibid.*, p. li.
36. *ibid.*, p. xlv.
37. *ibid.*, p. li.
38. *ibid.*, p. l.
39. *ibid.*, p. xxix.
40. *ibid.*, p. xxxii.
41. *ibid.*, p. 14.
42. in J. B. Carroll (ed.) *Language, Thought, and Reality*,  
Boston 1956, p. 252.



43. *ibid.*, p. 247.

44. *ibid.*, p. 266.

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5. *ibid.*, p. 5.

6. *The Archaeology of Knowledge*, p. 10.

7. *Power, Truth, Strategy*, p. 36.

8. *ibid.*, p. 39.

9. in *Selections from the Prison Notebooks*, London 1971, p. 6.

10. *ibid.*, p. 8.

11. *ibid.*, p. 12.

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13. *ibid.*, p. 29.

14. *ibid.*, p. 374.

15. *ibid.*, p. 366.

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